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TECHNICAL REPORT

Recommendations for improving health facility diagnosis and treatment of children under five years of age with severe febrile illnesses in the Lake Zone of Tanzania

MAY 2015

This technical report was prepared by University Research Co., LLC (URC) for review by the United States Agency for International Development (USAID) and was authored by Dr. Festus Kalokola, Dr. Kristina Lugangira, and Mr. Albert Ikonje of URC and Mr. Naiman Msangi of Management Sciences for Health. The work described was conducted under the USAID Diagnosis and Management of Febrile Illness (Tibu Homa) Program, which is made possible by the generous support of the American people through USAID.

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Acronyms

AIDS	Acquired Immunodeficiency Syndrome
ARVs	Antiretroviral
ASSIST	USAID Applying Science to Strengthen and Improve Systems Project
BCC	Behavior Change Communication
CME	Continuous Medical Education
DMIFP	District Malaria IMCI Focal Person
DMO	District Medical officer
ETAT	Emergency Triaging Assessment and Treatment
HCWs	Health Care Workers
HFMT	Health Facility Management Team
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
HMT	Hospital Management Team
HMTC	Hospital Medicine and Therapeutic Committee
IMCI	Integrated Management of Childhood Illnesses
IPD	Inpatient Department
ITNs	Insecticide Treated Nets
M&E	Monitoring and Evaluation
MOHSW	Ministry of Health and Social Welfare
mRDT	Malaria Rapid Diagnostic Test
MSD	Medical Store Department
MTC	Medicine and Therapeutic Committee
MTUHA	Mfumo wa Taarifa na Uendeshaji wa Huduma za Afya
OPD	Outpatient Department
OVCs	Orphans and Vulnerable Children
PDSA	Plan-Do-Study-Act cycle
PHCMTC	Primary Health Care Medicine and Therapeutic Committee
POPD	Pediatric Outpatient Department
PQITs	Pediatric Quality Improvement Teams
QI	Quality Improvement
RCH	Reproductive and Child Health
RCHCOO	Reproductive and Child Health Coordinator
RCM	Referral Care Manual
R/CHMT	Regional/Council Health Management Teams
RMIFP	Regional Malaria IMCI Focal Person
RMO	Regional Medical Officer
R&R	Report & Request
SCM	Supply Chain Management
SES	Standard Evaluation System
SOPs	Standard Operating Procedures
SSM	Supportive Supervision and Mentorship
THP	Tibu Homa Project
U5s	Under fives
USAID	United States Agency for International Development

Introduction

The Diagnosis and Management of Severe Febrile Illness Program known as Tibu Homa Program (THP) is a five-year, USAID-funded project supporting Regional and Council Health Management Teams (R/CHMTs) in the Lake Zone of Tanzania. The project has been operational since mid-2011 and covers six regions of the Lake Zone, namely, Kagera, Mara, Mwanza, Shinyanga, Simiyu and Geita. THP aims to improve the diagnosis and management of children under five years of age with severe febrile illnesses. The under-five morbidity and mortality rates in the Lake Zone are above national average and outpatient department (OPD) attendance remained relatively unchanged (e.g., 43% 2005 and 47% in 2007) despite high coverage for insecticide-treated nets (ITNs) (73%).[1] Presumptive malaria diagnosis leads to over-diagnosis, irrational treatment and possible missed opportunities to detect and treat other causes of febrile illnesses in children.[2] At the start of the project, the Lake Zone had low compliance to integrated management of childhood illness (IMCI) guidelines in treatment of children and deficient supportive supervision.[3,4] There was frequent stock-out of essential medicines and supplies[5] and a lack of clinical mentorship. Documentation of patient information was inadequate (Tibu Homa desk review, 2011).

Overall THP goal: To improve the diagnosis and management of severe febrile illness to reduce morbidity and mortality of children under five years of age in the Lake Zone of Tanzania

Specific objectives:

1) Increase availability of and accessibility to fundamental facility-based curative and preventive child health services;
2) Ensure sustainability of critical child health activities; and
3) Increase linkages within the community to promote healthy behaviors thereby increasing knowledge and use of child health services.

Indicators used to measure achievement of THP objectives: A total of 15 indicators as per the project's Results Framework were used to measure achievement of THP results (see **Appendix 1**). Most of the indicators were facility-based. However, to promote improved case management, THP emphasized indicators related to correct assessment and treatment of cases of febrile illness, availability of key commodities, and the management and use of data by health care workers (HCWs). The THP team found it important to address management and use of data because it helps health workers to process, develop and test changes that could be used to bring the intended improvements.

This work, carried out in collaboration with the Ministry of Health and Social Welfare (MOHSW), R/CHMTs and other partners, has shown considerable improvements in the diagnosis and management of fever in children under five in the Lake Zone. The supported facilities:

- Improved compliance to MOHSW IMCI/RCM case management guidelines, with average compliance increasing from 3% in January 2013 to 34% in June 2014.
- Improved diagnosis of malaria and other causes of fever, as evidenced by an increase in testing rate from 46% in January 2012 to 95% in June 2014.
- Improved the correct diagnosis of malaria, raising the rate of positivity for malaria testing from 75.1% in February 2012 to 95% in June 2014.
- Improved the treatment of malaria-positive cases according to national guidelines from 90% in January 2013 to 94% in June 2014.

[1] TDHS2007/8

[2] BMJ 204;329(7476):1212

[3] Bulletin of the WHO 2009;87:99-107

[4] CREHS Policy Brief June 2009

[5] (R&R Report (1999), JSI/DELIVER)

- Improved health facility stocks of essential medicines and supplies as evidenced by an increase in % of facilities stocked with more than 10 tracer items from 42% in February 2012 to 98% in June 2014.
- Improved the use of data for decision making, as shown by an increase in percentage of facilities using data from 46% in January 2013 to 69% in June 2014.

Consolidated results from the facilities supported by THP and partners in Mwanza, Mara and Kagera regions of Tanzania are presented in **Appendix 2**.

This document is based on the work that the THP accomplished in the first three years in the three Lake Zone. Even though the THP work covered the regions of Mwanza, Mara and Kagera, these recommendations are based on the work of pediatric quality improvement teams in two of the regions (Kagera and Mwanza) and were prepared in collaboration with the MOHSW regional and district health teams. It presents recommendations that are designed to assist facility health workers improve case management for children under five with fever. The recommendations aim to provide facility teams with a package whose implementation can ensure that all children under five with fever receive correct diagnosis and treatment, that there is constant availability of medicines and supplies at facility level and that the necessary information to guide improved decision making for the care of children under five with severe febrile illnesses is available.

The Tibu Homa Program trained facility health care workers (HCWs) who formed multidisciplinary teams known as pediatric quality improvement teams (PQITs) in 183 health facilities that tested and implemented a number of change ideas that are responsible for the improvements observed. The teams were supported in this collaborative improvement effort by coaches that came from the R/CHMT members and IMCI mentors that visited the teams monthly. A wedge design was used in each region to bring an initial group of facilities into the improvement collaborative, followed by a second wedge of sites in each region a few months later, and a third wedge or group of sites a few months after that (see **Appendix 3** for the timing of learning sessions in each wedge in each region).

Table 1 summarizes the key accomplishments of the Tibu Homa Program, its partners and the health facility teams it supported.

The recommended approach for improving case management in the Lake Zone is based on the work of the 136 facility-level pediatric quality improvement teams that the project helped to establish in Mwanza and Kagera regions.

These changes, among others in the Lake Zone, demonstrate that innovative ways of working at facility level can have a significant positive impact on the diagnosis and treatment of children with severe febrile illnesses.

Table 1: THP, Partners and Health Facility Accomplishments

TIBU HOMA PROGRAM

Between 2011 and 2012:

- Trained 580 HCWs in updated case management (CM) guidelines, using an approach that combines quality improvement (QI) methods and supply chain management (SCM) and formed 183 health facility pediatric quality improvement teams (PQITs) in three regions
- Trained and mentored 267 QI coaches, logistic and clinical mentors among the R/CHMTs
- Conducted monthly coaching and mentorship in collaboration with R/CHMTs
- Conducted 3 learning sessions organized quarterly for each wedge collaborative for each region (see Appendix 3)
- Conducted 2 harvest and synthesis workshops for Mwanza and Kagera regions (Appendix 4)
- Prepared a change package that consolidates the key learning and recommendations for how to implement changes in care of under-fives with fever.

Health Facility PQIT

- Redesigned case management flow maps that resulted in improving clinic efficiency
- Improved compliance to IMCI case management guidelines and Referral Care Manual (RCM)
- Improved diagnosis of malaria and other causes of fever
- Improved health facility stocks of essential medicines and supplies
- Improved health management information system (HMIS) and using data for decision making

Change Package: Definition and Expected Use

These recommendations are designed to be applied as a change package for improving case management at the facility level. A change package is an organized summary of strategies and solutions which have been tested and proven to improve care in a given context. A change concept is a category of changes or solutions that are similar and have a common underlying thought. A change idea is a specific way that may be applied in the implementation of a given concept in a particular situation.

This change package for improving case management of febrile illness in children under five describes changes that were tested by THP-supported teams in five key areas of improving care for severe febrile illness and includes guidance on how others can implement the changes. It is expected to be used by health facilities that intend to improve care of the sick children under-five years of age.

Based on the work of the initial teams in Mwanza and Kagera, the change ideas in Tables 2-6 describe the steps that health facilities need to take to improve the care of children under five with febrile illness. The tables present an organized summary of strategies and solutions which have been tested and proven to improve care of children under five with severe febrile illnesses.

This document represents THP-recommended guidance to health facilities to implement quality improvement initiatives in these five areas:

1) Ensuring all under-fives with fever receive correct diagnosis and treatment
2) Ensuring all under-fives with fever are tested with malaria rapid diagnostic tests (mRDTs) or microscopy
3) Ensuring health facilities have no stock-outs of essential medicines and supplies
4) Ensuring healthy facilities have adequate information to guide decision making
5) Ensuring all under-fives with fever are seen by skilled provider within 24 hours of onset of fever

Changes That Led to Improvement

This document presents the recommended changes for improving case management of children under five years of age with severe febrile illnesses, based on the work of the 136 PQITs who have been supported by THP and the R/CHMTs in Mwanza and Kagera from December 2011 to the time of the harvest workshops in August and September 2013 (see Appendix 4 for dates). The PQITs were supported through a) regular supportive supervision/coaching, b) clinical and logistic mentorship and c) monthly health facility visits by a team of THP staff, R/CHMTs and other selected regional coaches. Appendix 5 lists the key guidelines and job aids developed or disseminated by the project to support capacity building.

After case management training, facility health care workers formed pediatric quality improvement teams which developed work plans on how to implement the changes. The teams defined roles and responsibilities of the members who were to oversee improvement activities (see Appendix 6 for an example of Misasi Health Center). Support was sought from the entire facility staff handling children and from the health facility management. The PQITs tested changes and results by employing the “Plan-Do-Study-Act” (PDSA) cycle. They used a standard format for documentation of quality improvement work at the facility level for tracking and assessing the changes they tested (see Appendix 7 for a completed example and Appendix 8 for the blank documentation form). Graphs were plotted on each indicator, annotations made and the trend of the progress discussed to identify innovations that resulted in significant change.

During the monthly coaching visits the team noted and documented the effective changes made by the health facility PQITs. These changes were shared among PQITs, R/CHMTs and HMTs during “learning sessions” conducted quarterly. The PQITs presented and discussed in detail the changes made and how they made them. They presented the results achieved as time series charts related to each specific objective.

Each of the wedge improvement collaboratives addressed the five improvement objectives by testing changes such as those described below:

Ensure all under-fives with fever receive correct treatment

- In order to improve the diagnosis and treatment of children with severe febrile illnesses seen at the OPD or admitted to inpatient department (IPD), health care workers received a three-day Case Management training using the MOHSW's Referral Care Manual (Management of a child with a serious infection or severe malnutrition) in hospitals. Clinicians and nurses from health centers and dispensaries received a three-day training using the 11-day IMCI training guidelines. Later in the program the distance training program for IMCI was adopted instead.
- Trained staff then oriented the rest of facility staff on MOHSW policy and guidelines
- Guidelines and job aids were made available in all consultation rooms
- Staff conducted case reviews
  - The trained staff informed their colleagues on introduction of case review session in the facility.
  - Staff produced and displayed duty roster
- Staff received internal mentorship from peers and external supervision and mentorship from R/CHMTs

Ensure all under-fives with fever are tested with mRDT/Microscopy

- Staff who were trained by THP oriented others on national policy on malaria testing and treatment
- At least two HCWs in a facility were trained in mRDT by THP
- Columns were added in registers to document all under-fives reported to have fever, malaria testing and test results so as to capture data on testing and malaria positivity rate (see Appendices 9A and 9B)
- Testing of mRDT was shifted to the clinician's room
- Created multiple testing sites so that very child who has fever is tested

Ensure health facilities have no stock-out of essential medicines and supplies same

- Staff trained in supply chain management (SCM) oriented others on use of the Report and Request (R&R) form (see Appendix 10)
- HCWs made an ordering schedule so as order on time
- HCWs monitored daily stock-out by use of Stock-out Monitoring Forms (see Appendix 11)
- The HCWs conducted a physical count of drugs
- The HCWs ordered medicines and supplies based on facility need

Ensure health facilities have adequate information to guide decision making

- The PQITs oriented other staff on correct documentation of patient information in order to keep appropriate patient registers, i.e., files, OPD cards, HMIS registers, etc.
- The PQITs identified a focal person to monitor availability of patient information registers and other data collection tools and collect and compile data from all registers weekly/ monthly
- PQITs analyzed data, plotted graphs and displayed and shared data with other staff monthly

Ensure all under-fives with fever are seen by skilled provider within 24 hours of onset of fever

- The PQITs oriented staff on the importance of health education for parents and caretakers about bringing under-fives to health facilities within 24 hours of onset of fever
- A topic on early seeking of care was introduced at the Reproductive and Child Health (RCH) clinic during health education sessions
- Caretakers/parents were educated on seeking care at health facilities within 24 hours during consultation and outreach visits
- A topic on seeking health care within 24 hours was introduced during village health meetings
- To improve waiting time the facilities redesigned the flow maps:
  - Established separate OPD for children or pediatric consultation room

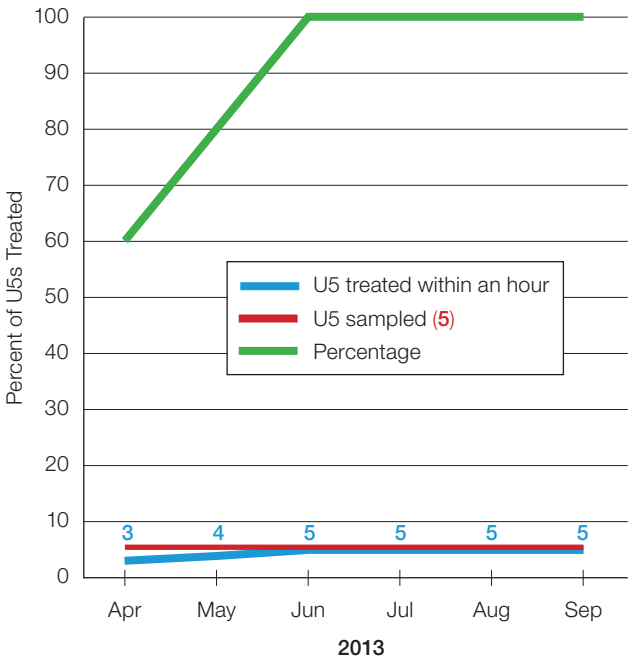
- Established multiple testing sites
- Moved mRDT testing to clinician room
- Separated children from adults, e.g., allocating a different window for children at pharmacy, bench for consultation where space doesn't allow a separate pediatric consultation room
- Introduced triaging at OPD
- Assigned a staff to sort under-fives for emergency or priority care (triage)

After two years of implementation of the improvement program, a selection of teams that represented best, middle and poorly performing PQITs were invited to a final learning session of the implementation phase which was designed as a harvest workshop to "harvest" the most effective changes for recommendation to other sites, as well as to identify changes which were not effective. Not all the 183 facilities tested exactly the same changes. However for purposes of the recommended practices, the THP team took into consideration the changes that produced the best results from a cluster of "best, middle and poorly performing" facilities as mentioned above.

The recommendations for changes were developed by THP staff drawing from the insights of regional coaches, mentors, and team members through discussions during the harvest workshop about the changes that teams implemented, how important they felt each change was to achieving their results and how each change was implemented. **Tables 2-6** show only the outcome indicators in a given area although PQITs were also tracking specific process indicators. For example, Figure 1 shows how patient waiting time at Nyegezi Dispensary in Mwanza Region improved by re-organizing patient flow to allow under-fives to be treated more promptly upon arrival at the facility. **Appendix 12** shows how patient flow for sick children was streamlined through the work of the PQIT in Nyegezi Dispensary and **Appendix 13** shows how teams improved patient record keeping in order improve accessibility of patient records and monitoring and evaluation.

A ranked list of each care step was presented at a cross regional learning session (harvest workshop) and discussed in a plenary session. Participants discussed an initial ranking of key changes; these changes are presented in Appendix 14. Appendix 15 gives a guide of steps which lead to the desired results.

Figure 1: Proportion of children treated within one hour at Nyegezi Dispensary



Making use of the facilitators, THP technical staff, regional coaches and mentors, a small group spent time on the ranked list for each care step, learning more about the change idea, how it was implemented, simplicity of implementation, the time to implement, the results (based on the time series charts), relative importance of the change and scalability. Each of these was given a score of 1 (low) to 5 (very high) to determine which changes would be recommended for spread to the new sites. Some sites implemented more than one change at the same time, so an average performance was calculated for each change.

After the harvesting session with PQITs of Kagera and Mwanza regions, the THP technical team synthesized and harmonized results from the two regions and regrouped the change ideas around the change concept (the underlying thought behind the change).

The most effective changes and guidance on how to implement them were then developed into this package of recommendations presented in Tables 2-6 as good practices that can be used in new sites. The ideas and changes recommended in this package are backed by data which shows improvements in patient waiting time, under-fives that received mRDT/malaria microscopy testing before treatment, under-five children with fever who

received appropriate diagnosis and treatment (compliance to IMCI/RCM guidelines), improved availability of medicines and supplies and making use of data in making decision for further improvement in the care of under-fives at the health facilities.

Figures 2-5 highlight the progress of tracked indicators in selected sits, and the annotations show the key activities taken to make the change improvements.

Table 2 describes changes tested related to two change concepts under improvement objective 1: 1) Improving HCW knowledge /skills and 2) Improving work flow to optimize clinic efficiency.

Table 2: Change concept, change ideas and guidance on how to implement the changes to ensure all under-fives with fever are receiving correct diagnosis and treatment

Specific problem being addressed	Change idea	Tracking indicator	How to implement the changes
Change concept: Improving HCW knowledge /skills			
Most U5s coming to health facilities are not managed according to IMCI algorithm	The health facility PQIT improve the skills of HCWs in Case Management by introducing job aids, guidelines, M&E and HMIS tools into routine health facility care.	Percentage of children correctly managed according to IMCI guidelines (see results in **Appendix 2**)	**Steps:** 1. The PQIT after receiving training briefs the HMT/Board on the improvement plan and budget 2. The HMT/boards provides funds to support photocopying guidelines, job aids, M&E tools and making time available for orientation of HCWs. The PQIT then: – Identifies staff to be oriented for target service identified – Prepares the materials – Makes orientation schedule 3. Orient HCWs on each target service according to prepared schedule – Clinical care (IPD and OPD) – Laboratory diagnosis and SCM – HMIS and Data Management – OVC Care
	Conduct internal mentorship and supervision monthly to improve HCW skills	Percentage of children correctly managed according to IMCI guidelines Availability of supervision /mentors reports, adherence to supervision calendar	**Steps:** 1. PQIT in collaboration with the facility Health Management Team (HMT) will do the following:- – Identify and assign mentors and supervisors – Prepare and display a mentors/supervisors roster – Prepare a guide(checklist) for supervision/mentorship 2. The Supervisors/Mentors supervise and mentor HCWs, prepare and submit monthly supervision/mentorship report to PQIT and HMT
	Introduce weekly case reviews and death audits	Percentage of children correctly managed according to IMCI guidelines	**Steps:** 1. PQITs and the HFMT assign staff to develop and display timetable of topics and presenters of case reviews 2. Assign staff to conduct death audits,* document and store the proceedings, 3. Analyze, prepare and share reports of case reviews and death audit with PQIT and HMT monthly

* MOHSW Referral Care Manual: In-patient standard treatment guidelines for managing a child with a serious infection or severe malnutrition. Chapter 10.3 provides guidance on what is needed to be done during audit of pediatric care.

Table 2: *continued*

Specific problem being addressed	Change idea	Tracking indicator	How to implement the changes
Change concept: Improving work flow to optimize Clinic Efficiency			
	• Change pattern flow to prioritize U5s care and treatment through establishment of POPD • Provide for emergency care at OPD • Bring dispensing, laboratory and patient information registration at OPD	Percentage of children correctly managed according to IMCI guidelines (Patient waiting time)	The process of improving efficiency of services in care, involve identification of areas with opportunities for improvement, equipping health care providers with tools necessary for result achievement. **Steps:** PQIT review and redesign the current flow chart and request the management to include the following; 1. Relocate/ establish POPD services at RCH 2. Introduce emergence triaging assessment and treatment (ETAT) at pediatric OPD 3. Develop duty roster to cover all shifts 4. Allocate clinician and triage nurse for U5s at RCH/ OPD 5. Integrate dispensing and min lab services and documenting registers at OPD.

Figure 2: IMCI Compliance: an average of 5 HFs (Kakindo Disp, Kashasha Disp, Ndolage Hosp, Kakobe HC and Kagera Sugar Hospital) from Jan–Aug 2013

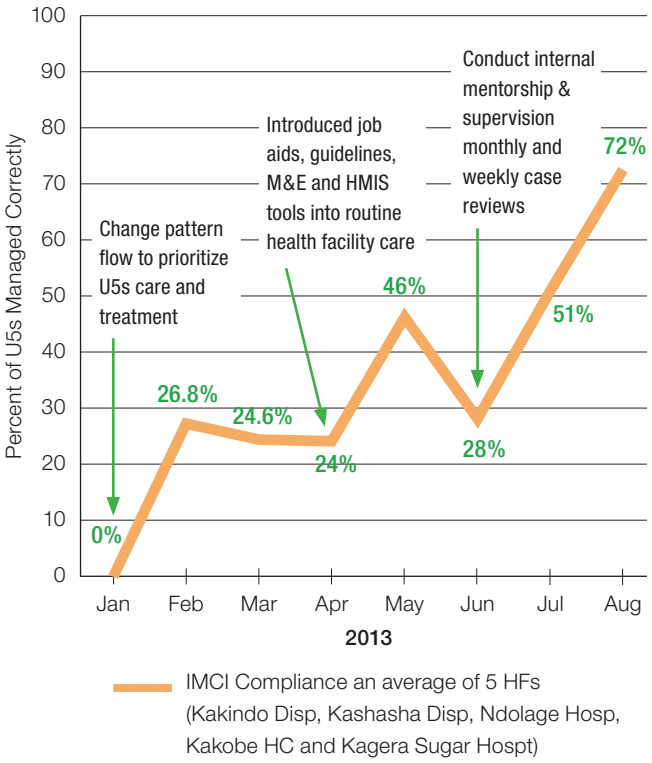


Figure 3: Malaria testing rate average from Ilemela Disp, Lushamba Disp and Kakobe HC from Jan–Aug 2013

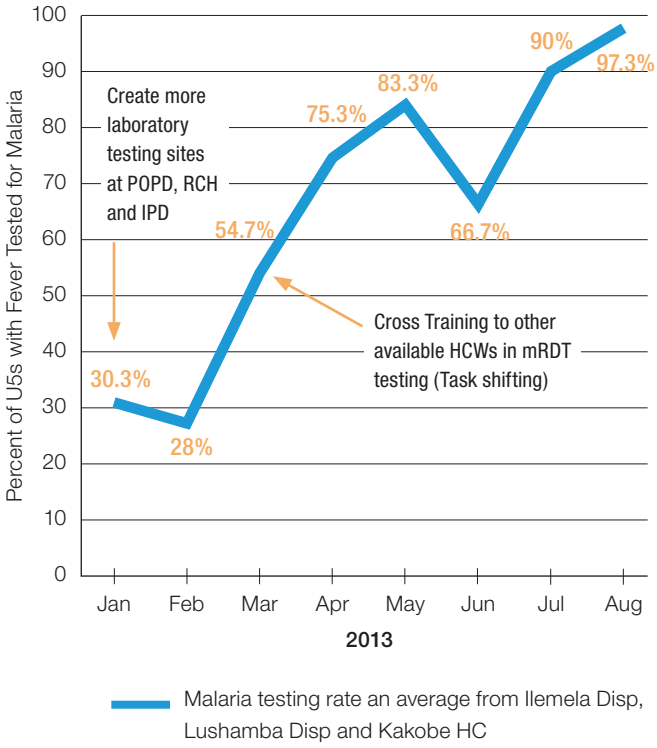


Table 3 describes changes tested related to two change concepts for addressing improvement objective 2: 1) improving HCW knowledge/skills, and 2) improving laboratory service efficiency.

Table 3: Change concept, change ideas and guidance on how to implement the changes to ensure all under-fives with fever are receiving correct diagnosis and treatment

Specific problem being addressed	Change idea	Tracking indicator	How to implement the changes
Change concept: Improving HCW knowledge /skills			
Most of U5s with fever are not tested for malaria	Incorporate importance of mRDT testing, proper documentation of mRDT results and other patient information in continuous medical education (CME) Cross Training to other available HCWs in mRDT testing (task shifting)	Percentage of under-fives tested before treatment	**Steps:** PQIT in collaboration with the HMT explain the importance and validity of mRDT testing, proper documentation of mRDT results and other patient information in CME by assigning staff to prepare the schedule and do the orientation to relevant staff
Change concept: Improving laboratory service efficiency			
	Create more laboratory testing sites at OPD, RCH and IPD Reorganize laboratory service to be available 24 hours a day including weekends and public holidays	Percentage of under-fives tested before treatment Availability of supervision / mentors reports, adherence to supervision calendar	**Steps:** QIT review the current flow chart to include the following depending on the care level of the health facility: 1. Relocate/establish new testing sites for U5s at RCH/IPD or separate testing services for U5s at main lab 2. Introduce lab roster of lab staff at all shifts, weekends and public holidays 3. In a situation where there is a shortage of mRDT, give priority to under-fives and use microscope for adults 4. In the absence of a lab technician in the evening and weekends, use mRDTs only for children 5. Introduce appropriate registers to document testing process at all testing sites 6. Proper and timely ordering of mRDT kits 7. Assign a PQIT member to monitor documentation, evaluation of the testing rates and results turnaround time and submit reports to PQIT monthly

Table 4 describes changes tested related to two change concepts for addressing improvement objective 3: 1) optimize inventory and 2) improving information and communications on the availability of medicines and supplies.

Table 4: Change concept, change ideas and guidance on how to implement the changes to ensure the health facility has no stock-outs of essential medicine and supplies

Specific problem being addressed	Change idea	Tracking indicator	How to implement the changes
Change concept: **Optimize inventory • Strengthen pull system • Matching inventory to predict demand**			
Most of U5s with fever are not tested for malaria	Introduction of medicines and therapeutic committees (MTC) guidelines in to routine services	Availability of stocks of essential items at the time of visit: 0-4,5-10 and >10 (completed check list of functionality of MTC, adherence to a quarterly meeting schedule)	**Steps:** 1. Obtains the MOHSW guidelines and job aids (Appendix 5) 2. Identifies committee members according to guidelines 3. Orients committee members about the matter 4. Develops a functionality monitoring checklist and the schedule 5. Identifies a member to monitor functionality of the MTC monthly and report to HMT 6. Develops a quarterly meeting schedule 7. Assigns a member of the MTC to share information with PQIT monthly
	Introduction of stock-out monitoring form at all dispensing areas (see **Appendix 9**) Conduct physical stock counting and update stock ledger as part of routine service	Availability of stocks of essential items at the time of visit: 0-4,5-10 and >10 (Availability of stock-out monitoring form at all dispensing areas)	**Steps:** PQIT review and redesign the current flow chart (see example of old and improved patient flow chart fo Nyegezi Dispensary in Appendix 10) and request the management to include the following: 1. Collects stock-out monitoring forms from the source/DMO or Reproduce own copies 2. Distributes stock-out monitoring forms(appendix 8) to all dispensing areas and orient users 3. Allocates staff to monitor correct use of the stock-out monitoring forms 4. Assigns staff to conduct monthly physical count and update stock ledger
	Introduce consistent recording of consumption data in the dispensing registers at each dispensing area	Availability of stocks of essential items at the time of visit: 0-4,5-10 and >10 (Complete and correct documentation of consumption data)	**Steps:** Facility health management team 1. Obtains dispensing registers from District Medical Officer (DMO) or Medical Stores Department (MSD) or reproduce using other sources of funds (in case not available at MSD/DMO) 2. Orients staff on proper recording of consumption data in dispensing registers 3. Distributes dispensing registers in all dispensing areas 4. Assigns staff to record consumption data in each dispensing area PQIT assigns one of the members to monitor correct recording of consumption data in the dispensing registers

continued

Table 4: *continued*

Specific problem being addressed	Change idea	Tracking indicator	How to implement the changes
Change concept: Optimize inventory • Strengthen pull system • Matching inventory to predict demand			
Most of U5s with fever are not tested for malaria *continued*	Introducing assessment and verification of the quantity and quality of medicines	Availability of stocks of essential items at the time of visit: 0-4,5-10 and >10	**Steps:** MTC to: 1. Identify and form subcommittee on assessing and verifying the quantity and quality of medicine 2. Introduce assessment and verifying procedures to subcommittee members 3. Assign one of the MTC members to monitor functionality of the subcommittee. 4. Share the results of assessment and verification in the routine MTC and PQIT meetings
Change concept: Improving information and communications on the availability of medicines and supplies			
Poor coordination and communication concerning supply availability	MTC provides updates on the availability of medicines during the clinical meetings	Availability of stocks of essential items at the time of visit: 0-4,5-10 and >10 (Number of updates during the clinical meeting reports)	**Steps:** MTC should: 1. Introduce updates on stocks of medicines and supplies into routine clinical meetings 2. Assign one of its members to inform clinicians about the stock-out level during routine clinical meetings 3. Assign a member to document and monitor the frequency of updates provided during the clinical meetings
	Communicate with DMO/MSD for follow-up	Availability of stocks of essential items at the time of visit: 0-4,5-10 and >10 (availability of reports, sharing information with DMO, Submission of R&R on schedule, % of R&R correctly filled)	**Steps:** The health facility in charge should use the results of stock out monitoring tool to: 1. HF in charge to share information with DMO monthly on the status of the available commodities through the use of stock status monitoring form (Appendix 9) and the R&R form (Appendix 8) 2. DMO to give feedback to HF on the received information 3. Follow-up with DMO/MSD on the requested items

Figure 4: Average number of tracer items in stock at Nyaguge HC, Kaloleni Dispensary and Ilemela Dispensary from Jan–Aug 2013

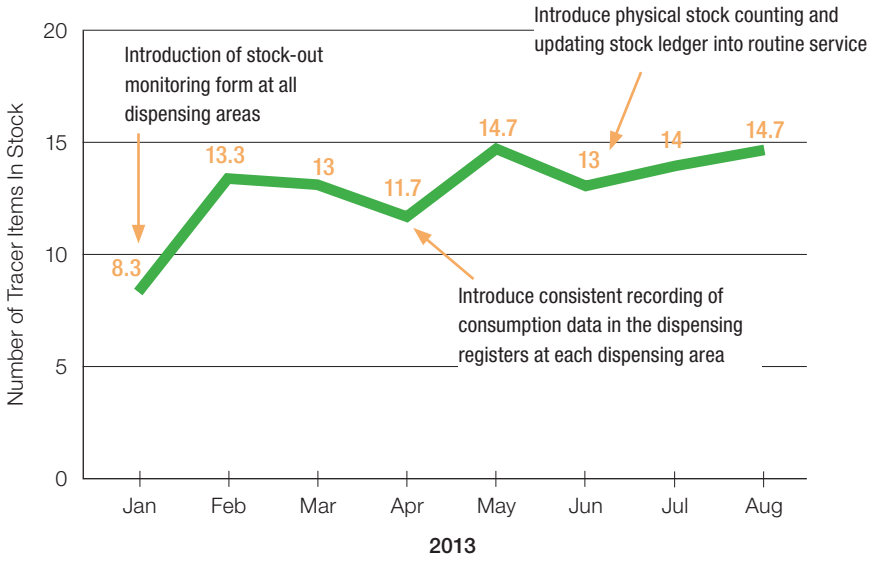


Table 5 describes changes tested related to two change concepts for addressing improvement objective 4: 1) improving efficiency of data management and 2) improving access to information and data analysis.

Table 5: Change concept, change ideas and guidance on how to implement the changes to ensure the health facility has adequate information to guide decision making

Specific problem being addressed	Change idea	Tracking indicator	How to implement the changes
Change concept: Improving efficiency of data management			
Most of the health facilities lack adequate quality data	Health facility information is provided from one source	Documented evidence that the facility is using data to plan improvement (PDSA) (Availability of monthly data review minutes/ reports, health information is available from one source)	**Steps:** The health facility management team: 1. Identify and assign a data management focal person 2. Produce and display roster for supportive supervision on data management to other HCWs 3. Organize and coordinate data management monthly meetings 4. Attend and share data management report at the monthly PQIT meeting
	Monitoring availability of patient information, registers and other data collection tools weekly/monthly	Documented evidence that the facility is using data to plan improvement (PDSA) (% of under-fives with complete filled in information, availability of weekly and monthly complied data)	**Steps:** 1. Health facility in-charge assign HCW to monitor availability of patient information, registers and other data collection tools 2. Assigned HCW to monitor and report on availability of registers and tools monthly to health facility in charge 3. The assigned HCW checks regularly if the registers have appropriate columns drawn and information appropriately filled out, collects and compiles data from all registers weekly and submits compiled data to the PQIT focal person and the data management focal person

continued

Table 5: *continued*

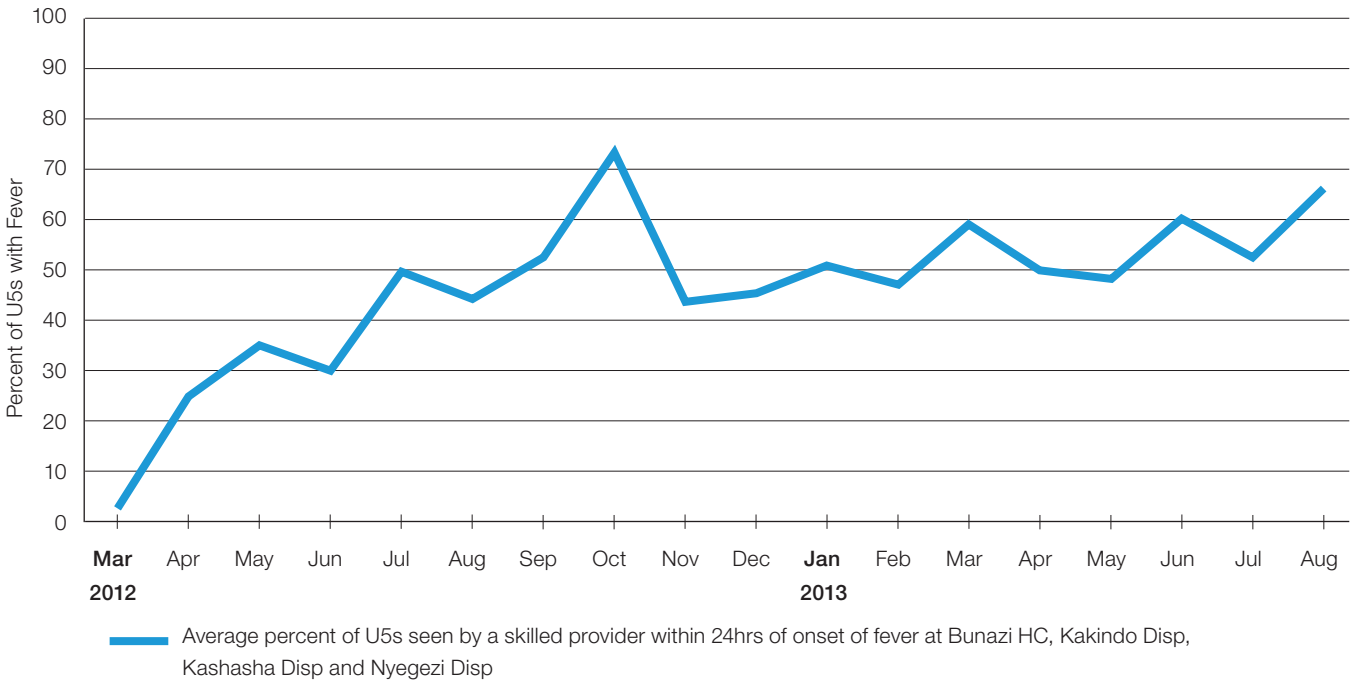
Specific problem being addressed	Change idea	Tracking indicator	How to implement the changes
Change concept: Improving access to information and data analysis			
	PQITs analyze data, plot graphs and share data with health facility management and other HCWs PQITs display data on notice board monthly	Documented evidence that the facility is using data to plan improvement (PDSA) (Information timely submitted to HF in-charge, DMO, RMO. Information is available on sideboards inform of displayed run charts)	**Steps:** 1. PQIT prepares data collection, analysis and sharing protocols 2. PQIT prepares and agrees with the health facility management on the results-sharing schedule 3. PQIT secretary sends out a notice of the meeting to HCWs two weeks before the meeting 4. PQIT focal persons send data to MTUHA officer who sends it to HF in charge for onward transmission to DMO and RMO 5. PQIT identifies and prepares notice boards for posting results 6. PQIT focal person posts results on notice board monthly
	PQITs use data to plan for further improvements (PDSA cycle: Plan-Do-Study-Act cycle)	Documented evidence that the facility is using data to plan improvement (PDSA) (Number of changes tested, successful/not working)	**Steps:** 1. PQIT focal persons assigned responsibility for documenting changes on the standard format for documentation of improvement work (see Appendix 7) 2. PQIT secretary sends out a notice of the PQIT meeting two weeks before the meeting 3. PQIT reviews progress made per each indicator: a. Determine outcome of changes made b. Determine changes that have given improvement results c. Decide on what changes are required to bring further improvement. d. If no further improvement required discuss with the health facility management to institutionalize the changes

Table 6 describes changes tested related to one change concept for addressing improvement objective 5: 1) improving health-seeking behavior for under-fives with fever.

Table 6: Change concept, change ideas and guidance on how to implement the changes to ensure all under-fives with fever are seen by a skilled within 24 hours of onset of fever

Specific problem being addressed	Change idea	Tracking indicator	How to implement the changes
Change concept: Improving health-seeking behavior for under-fives with fever			
Delay in accessing health care for under-fives with 24hours of onset of fever	Health care workers and parents/ caretaker provided with information on health seeking for under-fives	Percentage of under-fives with fever seen by skilled health provider within 24 hours of fever	**Steps:** • PQIT discusses with RCH Coordinator importance of educating caretakers on bringing U5s to health facilities within 24hrs of onset of fever • RCH Coordinator orients staff on importance of educating caretakers on bringing U5s to health facilities within 24hrs of onset of fever • Develop and display a duty roster to provide health education to community members attending • Assign a PQIT member to monitor if the activity is taking place according to schedule/ duty roster • Columns added in register to record fever duration

Figure 5: Average percent of under-fives seen by a skilled provider within 24 hours of onset of fever at Bunazi Health Center, Kakindo Dispensary, Kashasha Dispensary and Nyegezi Dispensary, March 2012 – August 2013



Recommendations

To improve the diagnosis and management of severe febrile illness and reduce morbidity and mortality of children under five years of age, we recommend the adoption of the following actions:

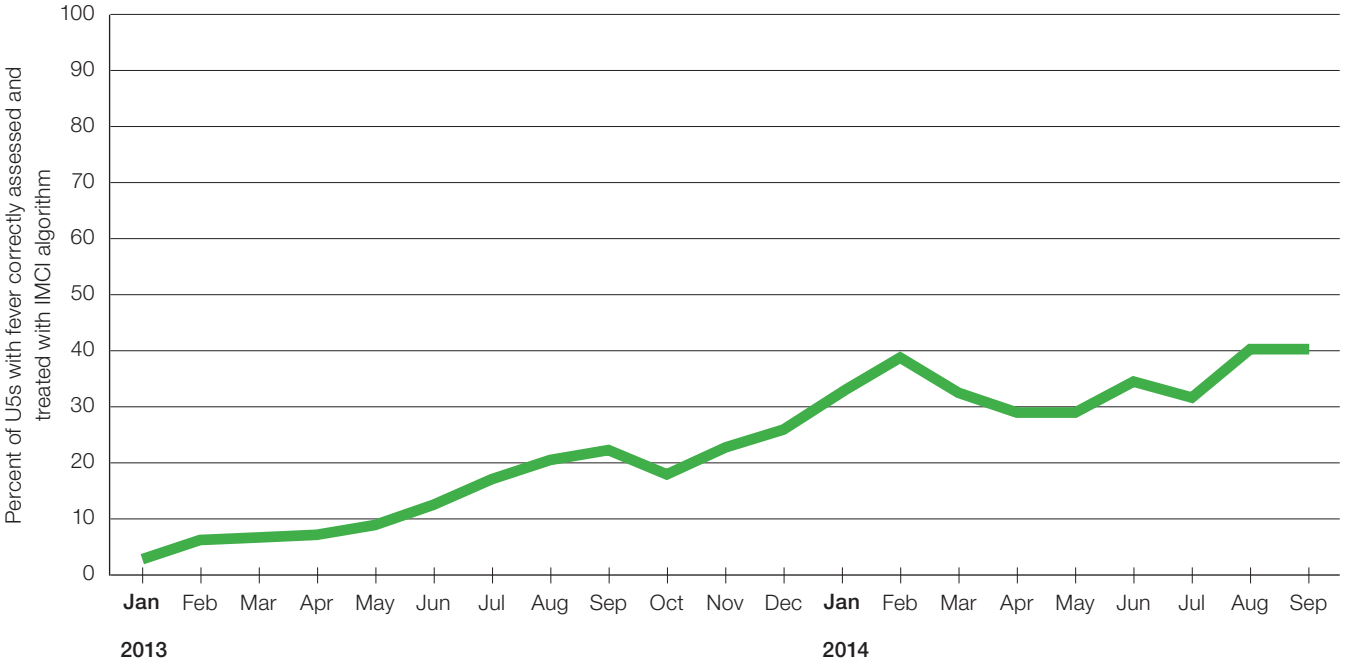
- Establishment of a health facility pediatric quality improvement team by the health facility management team (HMT) or CHMT. The PQIT is a multidisciplinary team that is comprised of HCWs from clinical, pharmaceutical and laboratory diagnostic services. It is recommended that the management team select committed/willing staff members for the PQIT. In hospitals and health centers, the team could be made up of 10-12 people. At the dispensary level, the team should include all health care workers (HCWs) due to low staffing.
- Provide QI and case management training (including logistic management training) to 5-6 PQIT members for hospitals/health centers and 1-2 members from dispensaries using the Ministry of Health and Social Welfare guidelines. During the training, PQIT members should develop improvement plans.
- Upon returning to their health facility, the trained members of the PQIT should introduce the improvement plan and the tools to the rest of the team members and the HMT; define leadership comprised of a focal person, secretary and time keeper and assign improvement roles, as appears in the last column on "How to implement the changes" in Tables 2-6.
- The PQIT will take charge of orientation of health care workers on improvement plans to address gaps in case management and improving knowledge and skills (capacity building) of health care workers through on-job- training in specific service areas of:
  - Diagnosis and treatment of children under five with febrile illnesses using standard guidelines and job aids (RCM, IMCI)
  - Laboratory diagnostic testing using malaria rapid diagnostic tests (mRDTs) and malaria microscopy, and other tests for other causes of fever
  - Supply chain management
  - Data management

Appendix 1: List of Indicators

1. Malaria positivity test rate.
2. Percent of children <5 with fever who are correctly assessed and treated using IMCI algorithm
3. Proportion of children <5 with fever who are seen by a skilled provider within 24 hours of onset of fever in the last month.
4. Percent of all suspected malaria cases that received a parasitological test.
5. Percentage of confirmed outpatient malaria cases that received appropriate antimalarial treatment according to national policy.
6. Percentage of health facilities reporting no stock-out of key commodities during the reporting period.
7. Percentage of health facilities reporting no stock-out of artemisinin-based combination therapies during the reporting period.
8. Percentage of health facilities reporting no stock-out of mRDTs during the reporting period.
9. Proportion of health facilities stocked with tracer first line medicines and supplies at the time of the visit.
    a. 0-4 tracer items
    b. 5-9 tracer items
    c. 10+ tracer items
10. Proportion of wards with a documented system for referral of children under five with fever in the last quarter
11. Number of eligible orphans and vulnerable children (OVC) provided with a minimum of one CORE care service
12. Number of orphans and vulnerable children < 5 years with fever attended at health facility.
13. Number of health facilities with at least 60% of health care workers managing children trained in febrile case management
14. Number of R/CHMTs and hospital management teams (HMTs) with at least 50% trained in leadership and financial management
15. Number of health workers trained with USG funds
    a. Number of health workers trained in malaria treatment or prevention
    b. Number of health workers trained in malaria Laboratory diagnostics (mRDT and microscopy)
    c. Number of health workers trained in CM supportive supervision
    d. Number of health care workers trained in CM mentorship

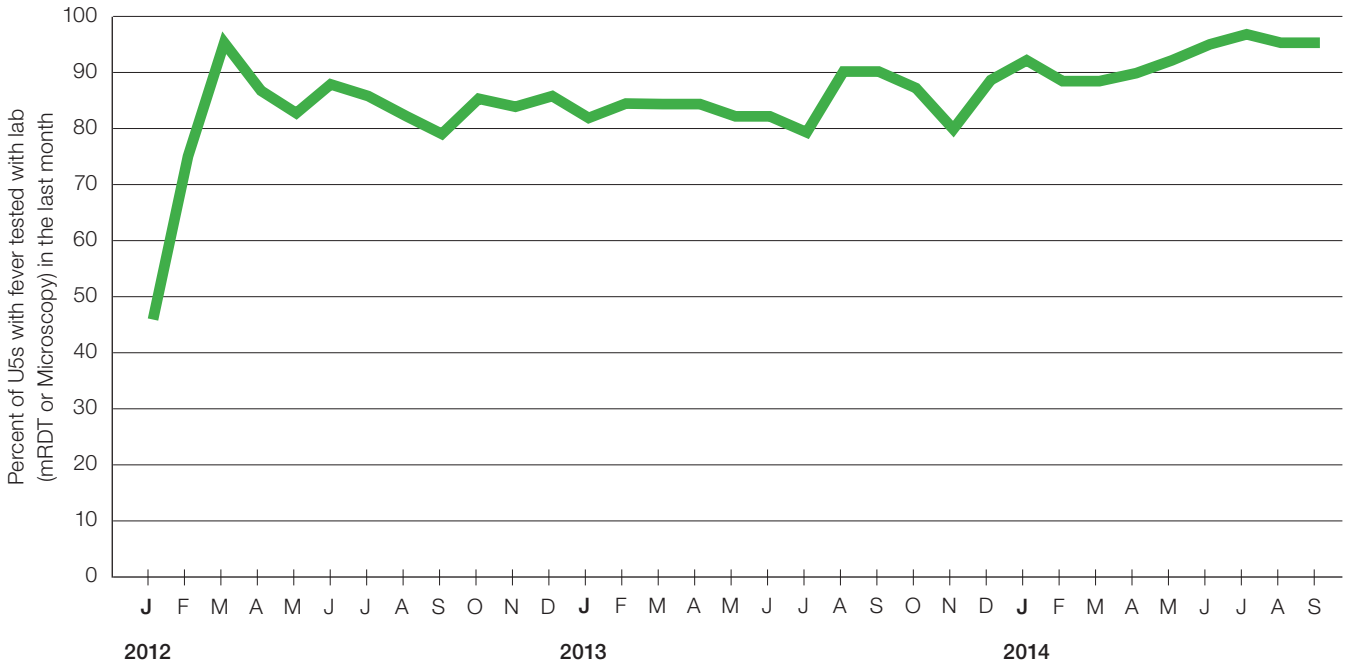
Appendix 2: Consolidated Results from PQITs in Mwanza, Mara and Kagera Regions

Proportion of children U5 with fever who are correctly assessed and treated using IMCI algorithm in 174 sites in Mwanza, Mara and Kagera regions, January 2013 – September 2014

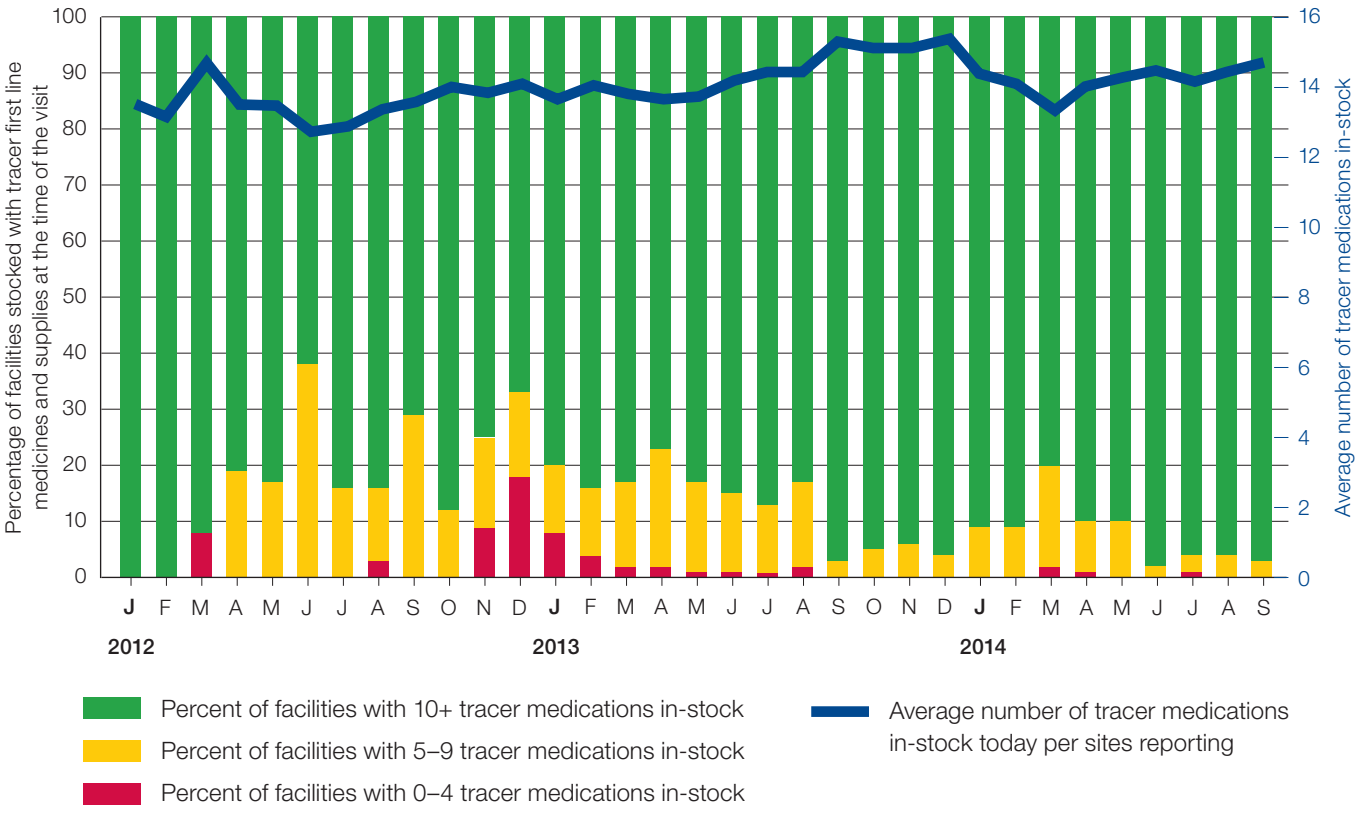


Percentage of children U5 with fever attending facilities who are seen by a skilled provider within 24 hours of onset of fever in the last month in 178 Mwanza, Mara and Kagera Regions, January 2012 – September 2014

Percentage of children under five years old with fever tested with lab (mRDT or microscopy) in the last month in 175 sites in Mwanza, Mara and Kagera, January 2012 – September 2014



Percentage of facilities stocked with tracer first line medicines and supplies at the time of the visit in 178 sites in Mwanza, Mara and Kagera, January 2012 – September 2014



Appendix 3: Timing and Number of PQITs Attending Learning Sessions for Each Wedge Collaborative in Mara, Mwanza and Kagera Regions

Wedges	Mara Region		Mwanza Region		Kagera Region	
	Dates	No. of Teams	Dates	No. of Teams	Dates	No. of Teams
1	11–13 Jul 2012	23	18–20 Jul 2012	20	13-15 Nov 2012	21
	25–27 Feb 2013	19	12–18 Dec 2012	25	21-23 Feb 2013	21
			27 Feb–02 Mar 2013	19		
2	12–14 Nov 2012	13	18–20 Jul 2012	15	13-15 Nov 2012	24
	27 Feb – 01 Mar 2013	14	12–18 Dec 2012	25	21-23 Feb 2013	
			27 Feb–02 Mar 2013	25		
3	27 Feb – 1 Mar	14	25–27 Feb 2013	25	13-15 Nov 2012	22
	13–15 Mar 2013	12	20–25 May 2013	25	21-23 Feb 2013	

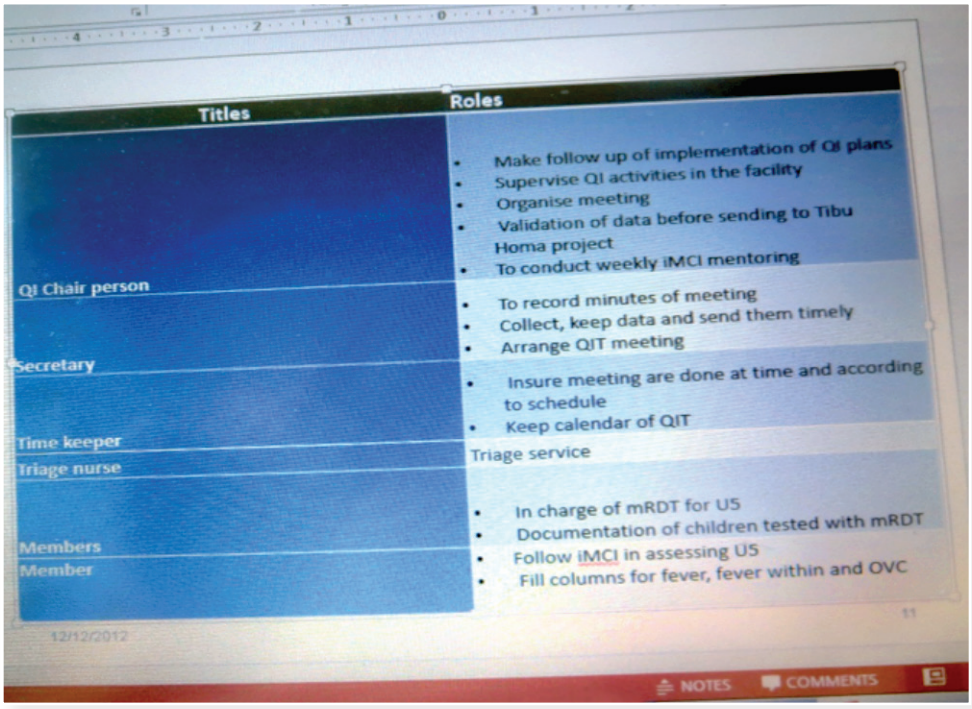
Appendix 4: Harvest/Synthesis Workshop for Selected PQITs from First and Second Wedge Collaboratives of Mwanza and Kagera Regions

Wedges	Dates of Harvest	Region	No. of PQITs
1	21–22 Aug 2013	Kagera	11
2	23–24 Aug 2013	Kagera	9
1	23– 24 Sept 2013	Mwanza	13
2	26–27 Sept 2013	Mwanza	14
Total PQITs			**47**

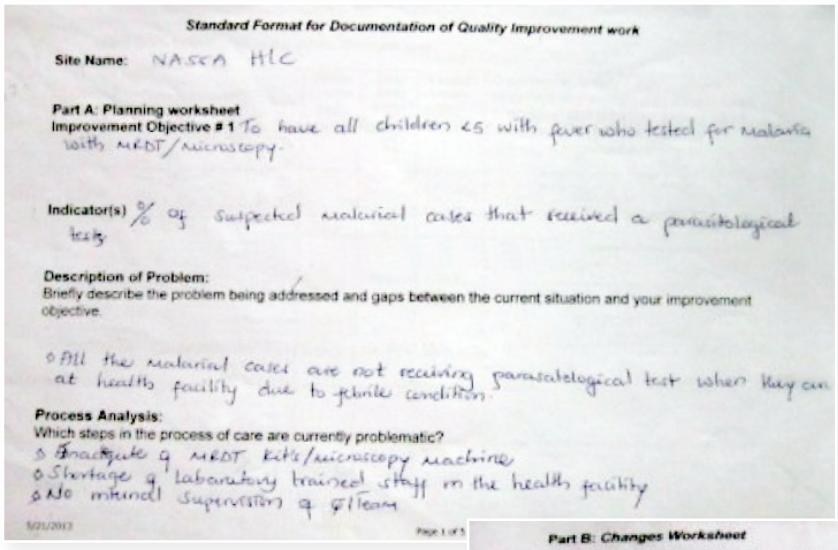
Appendix 5: List of Training Guidelines and Job Aids

- The MOHSW IMCI Guidelines and facilitator guides-2011and job aids.
- Management of a child with a serious disease or severe malnutrition (Referral Care Manual: RCM) and job aids-Guideline for care at first referral level.
- The MOHSW Supply Chain Management (SCM) and Integrated Logistic System (ILS) Trainers guide, 2011.
- Medicine and Therapeutic Committee's MOHSW Guideline and Supervision Checklist
- The MOHSW Logistic Monitoring/On Job Training Tool Kit for ARVs and HIV Test Kit Logistic System.
- MOHSW Training Package of Quality Improvement of HIV/AIDS Services Module1 (participant and facilitator guide).
- MOHSW Training on Comprehensive supportive supervision and mentoring of HIV/AIDS health services (participant manual and facilitator) guide.
- A guideline for supportive supervision on Pediatric Referral Care, Reproductive and Child Health section MOHSW, October 2009.
- MOHSW Learners Manual and Facilitator Guide for Malaria rapid diagnostic test May 2012.

Appendix 6: PQIT-defined Roles and Responsibilities, Misasi Health Center



Appendix 7: Completed Team-level Documentation Journal with Annotated Time Series Graph



Standard Format for Documentation of Quality Improvement work

Site Name: NASEA HLC

Part A: Planning worksheet
Improvement Objective # 1 To have all children <5 with fever who tested for malaria with MRDT/microscopy.

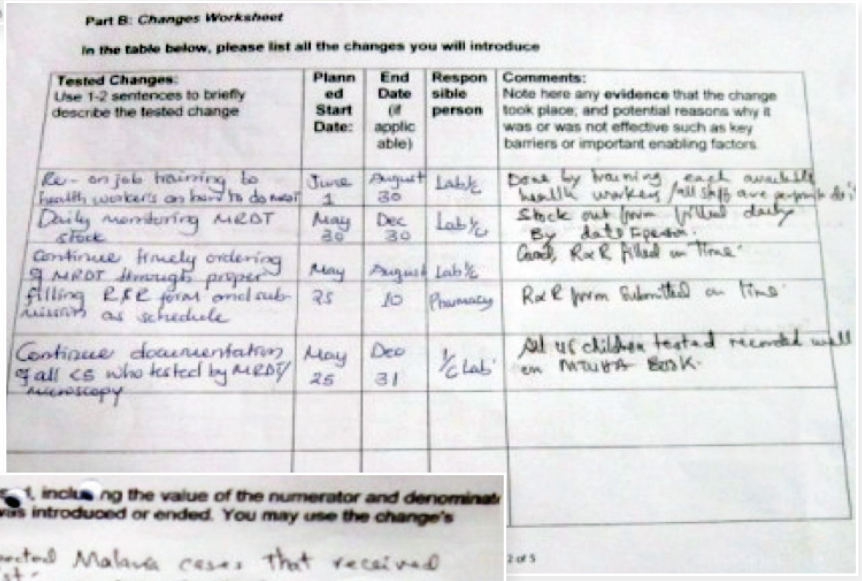
Indicator(s) % of suspected malarial cases that received a parasitological test.

Description of Problem:
Briefly describe the problem being addressed and gaps between the current situation and your improvement objective.

- All the malarial cases are not receiving parasitological test when they are at health facility due to febrile condition.

Process Analysis:
Which steps in the process of care are currently problematic?

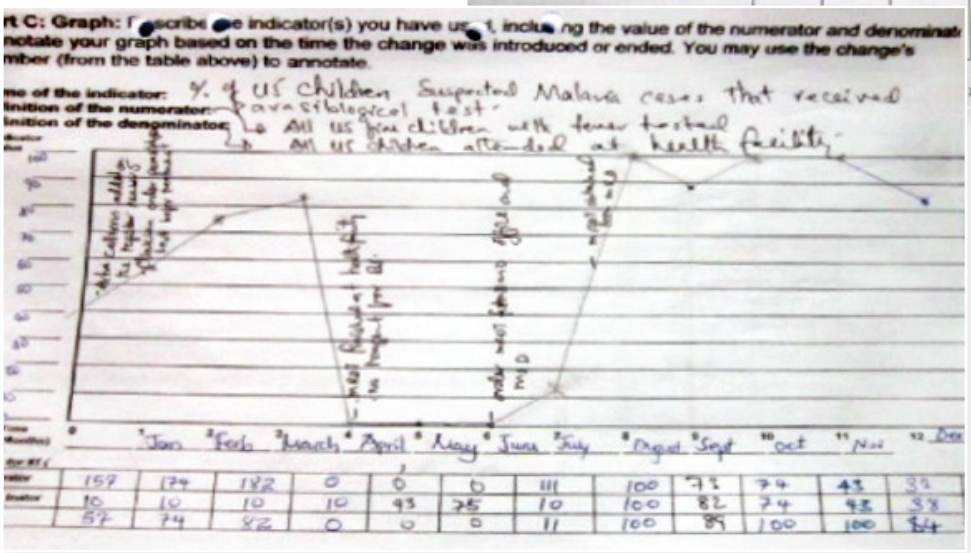
- Inadequate of MRDT kits/microscopy machine
- Shortage of laboratory trained staffs in the health facility
- No internal supervision of HTeam



Part B: Changes Worksheet

In the table below, please list all the changes you will introduce

Tested Changes: Use 1-2 sentences to briefly describe the tested change	Planned Start Date:	End Date (if applicable)	Responsible person	Comments: Note here any evidence that the change took place, and potential reasons why it was or was not effective such as key barriers or important enabling factors
Re-on job training to health workers on how to do MRDT	June 1	August 30	Lab/c	Done by training each available health workers/all staffs are present do's
Daily monitoring MRDT stock	May 30	Dec 30	Lab/c	Stock out form filled daily By data Operator.
Continue timely ordering of MRDT through pepfar	May	August	Lab/c	Cards, RxR filled on time.
filling RxR form and submission as schedule	25	10	Pharmacy	RxR form submitted on time
Continue documentation of all <5 who tested by MRDT/ microscopy	May 25	Dec 31	c/Lab	All U5 children tested recorded well on NATURA BOOK.



rt C: Graph: Describe the indicator(s) you have used, including the value of the numerator and denominator. Annotate your graph based on the time the change was introduced or ended. You may use the change's number (from the table above) to annotate.

me of the indicator: % of U5 children Suspected Malaria cases that received
inition of the numerator: parasitological test.
inition of the denominator: a All U5 febrile children with fever tested
b All U5 children attended at health facility

	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec
a	157	174	182	0	0	0	111	100	73	74	43	33
b	10	10	10	10	93	75	10	100	82	74	43	38
	57	74	82	0	0	0	11	100	89	100	100	84

Appendix 8: Standard Format for Documentation of Quality Improvement Work

Site Name:

Part A: Planning worksheet

Improvement Objective # 1

Indicator(s)

Description of Problem:

Briefly describe the problem being addressed and gaps between the current situation and your improvement objective.

Process Analysis:

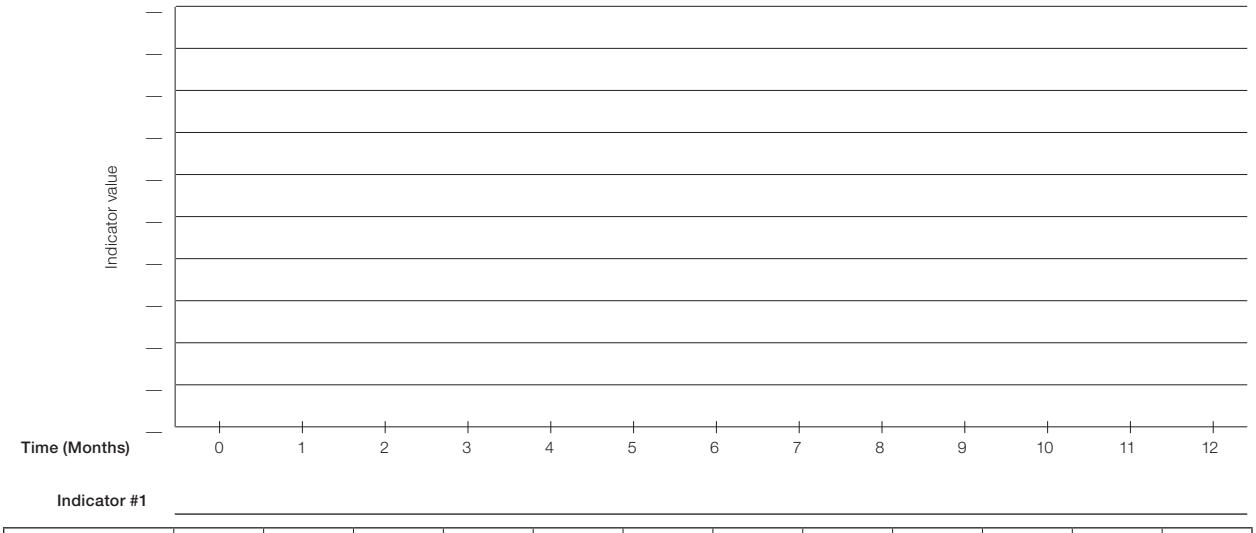
Which steps in the process of care are currently problematic?

Part B: Changes Worksheet

In the table below, please list all the changes you will introduce

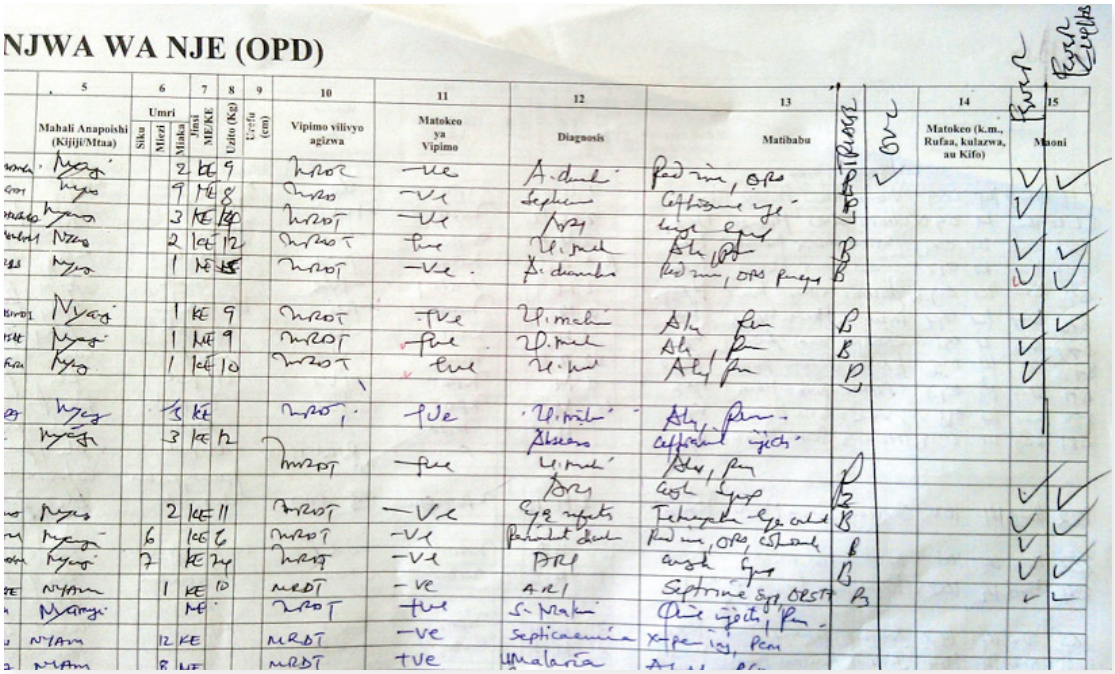
Tested Changes: Use 1-2 sentences to briefly describe the tested change	**Planned Start Date**	**End Date** *(if applicable)*	**Responsible person**	**Comments:** Note here any **evidence** that the change took place; and potential reasons why it was or was not effective such as key barriers or important enabling factors.

Part C: Graph: Describe the indicator(s) you have used, including the value of the numerator and denominator. Annotate your graph based on the time the change was introduced or ended. You may use the change's number (from the table above) to annotate.



Numerator												
Denomenator												
%												

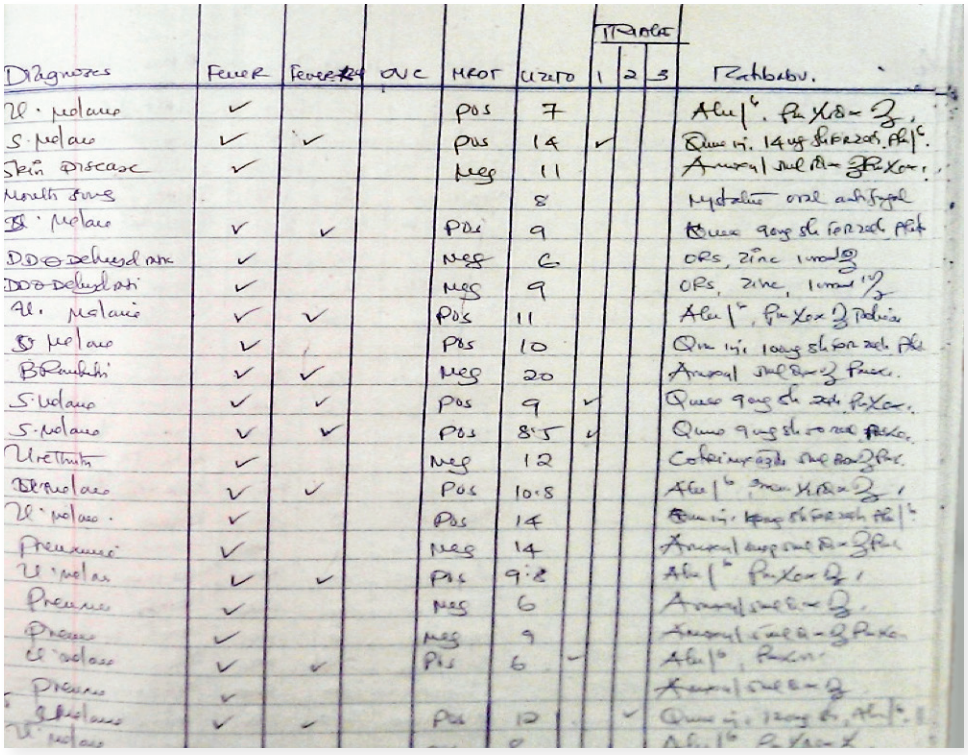
Appendix 9A: HMIS Register No. 5 with Extra Columns Introduced



NJWA WA NJE (OPD)

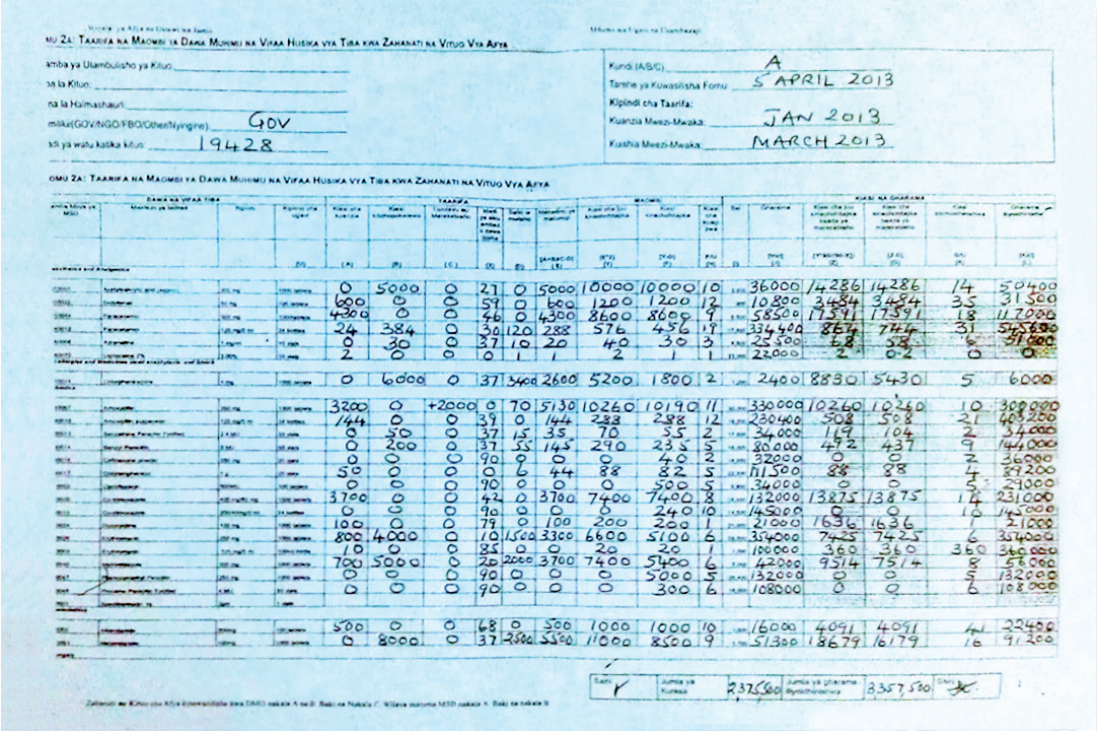
5	6	7	8	9	10	11	12	13		14	15
Mahali Anapoishi (Kijiji/Mtaa)	Umri: Siku / Miezi	Umri: Miaka / Jinsi ME/KE	Uzito (Kg)	Urefu (cm)	Vipimo vilivyo agizwa	Matokeo ya Vipimo	Diagnosis	Matibabu		Matokeo (k.m., Rufaa, kulazwa, au Kifo)	Maoni
Nyeg		2 KE	9		MRDT	-ve	A. dumb	Paracetamol, ORS	B		
Nyeg		9 ME	8		MRDT	-ve	Septicaemia	Ceftriaxone inj	B		
Nyeg		3 KE	14		MRDT	-ve	URTI	Cough syrup	B		
Nyeg		2 KE	12		MRDT	+ve	Malaria	Coartem, Paracetamol	B		
Nyeg		1 KE	15		MRDT	-ve	A. diarrhoea	Paracetamol, ORS, Panadol	B		
Nyeg		1 KE	9		MRDT	+ve	Malaria	Coartem, Paracetamol	B		
Nyeg		1 ME	9		MRDT	+ve	Malaria	Coartem, Paracetamol	B		
Nyeg		1 KE	10		MRDT	+ve	Malaria	Coartem, Paracetamol	B		
Nyeg		5 KE			MRDT	+ve	Malaria	Coartem, Paracetamol			
Nyeg		3 KE	12				Abscess	Ceftriaxone inj			
					MRDT	+ve	Malaria	Coartem, Paracetamol	B		
							URTI	Cough syrup	B		
Nyeg		2 KE	11		MRDT	-ve	Eye infection	Tetracycline eye ointment	B		
Nyeg	6	KE	6		MRDT	-ve	Peripheral abscess	Paracetamol, ORS, Cloxacillin	B		
Nyeg	7	KE	14		MRDT	-ve	DRI	Cough syrup	B		
NYAM		1 KE	10		MRDT	-ve	ARI	Septrine syp, ORS	B		
Nyeg		ME			MRDT	+ve	S. Malaria	Quine inj, Paracetamol			
NYAM		12 KE			MRDT	-ve	Septicaemia	Ampicillin inj, Penicillin			
NYAM		8 KE			MRDT	+ve	Malaria				

Appendix 9B: Log Book Used Where HMIS Register Was Not Available



Diagnoses	Fever	Fever>24	OVC	MRDT	Uzito	Tiba 1	Tiba 2	Tiba 3	Matibabu
U. malaria	✓			pos	7				Alu 6, Par X8 = 2,
S. malaria	✓	✓		pos	14	✓			Quine inj. 14 mg Paracetamol 6
Skin disease	✓			neg	11				Amoxyl, Septrin, Par X =
Mouth sores					8				Hydralite, oral antifungal
U. malaria	✓	✓		pos	9				Quine 9mg, Paracetamol
Dehydration	✓			neg	6				ORS, Zinc, Lumefantrine
Dehydration	✓			neg	9				ORS, Zinc, Lumefantrine 1½
Al. malaria	✓	✓		pos	11				Alu 6, Par X = 2, Penicillin
S. malaria	✓			pos	10				Quine inj. 10mg, Paracetamol
Bronchitis	✓	✓		neg	20				Amoxyl, Septrin, Paracetamol
S. malaria	✓	✓		pos	9	✓			Quine 9mg, Paracetamol
S. malaria	✓	✓		pos	8.5	✓			Quine 9mg, Paracetamol
Urethritis	✓			neg	12				Ceftriaxone, Septrin, Paracetamol
U. malaria	✓	✓		pos	10.5				Alu 6, Par X = 2,
U. malaria	✓			pos	14				Quine inj. 14mg, Paracetamol 6
Pneumonia	✓			neg	14				Amoxyl, Septrin, Paracetamol
U. malaria	✓	✓		pos	9.8				Alu 6, Par X = 2,
Pneumonia	✓			neg	6				Amoxyl, Septrin, Paracetamol
Pneumonia	✓			neg	9				Amoxyl, Septrin, Paracetamol
U. malaria	✓	✓		pos	6	✓			Alu 6, Paracetamol
Pneumonia	✓								Amoxyl, Septrin
S. malaria	✓	✓		pos	12			✓	Quine inj. 12mg, Alu 6,
U. malaria									Alu 6, Par X =

Appendix10: Example of Completed R&R Form

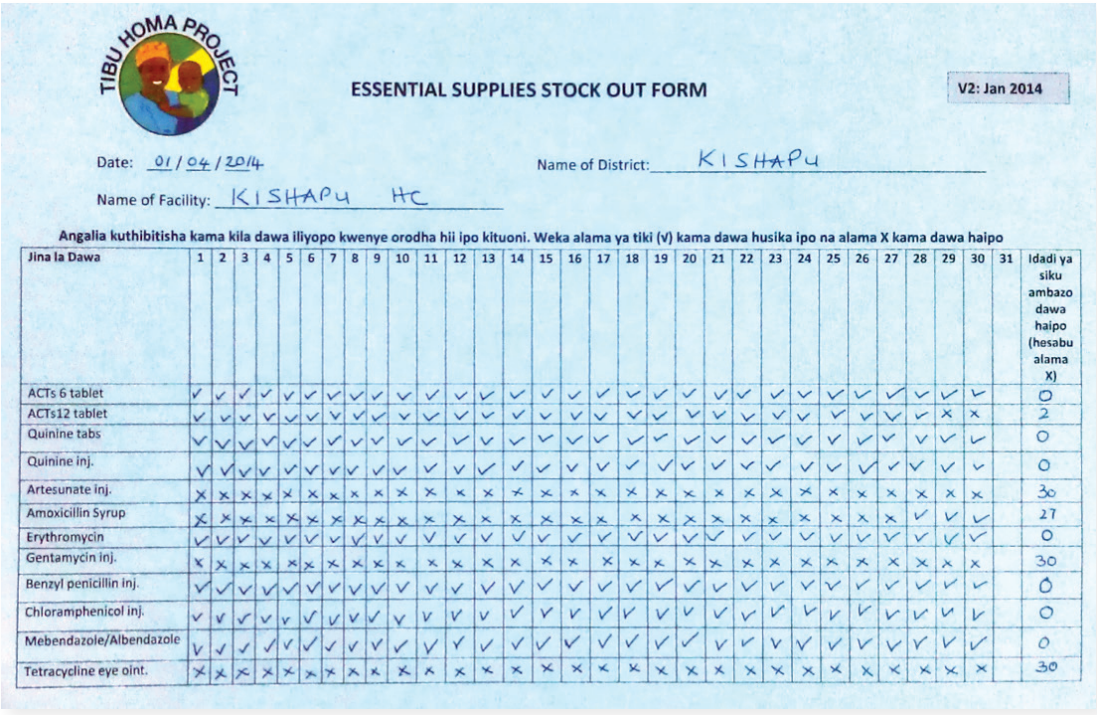


FOMU 2A: TAARIFA NA MAOMBI YA DAWA MUHIMU NA VIFAA HUSIKA VYA TIBA KWA ZAHANATI NA VITUO VYA AFYA

Kundi (A/B/C): A
Tarehe ya Kuwasilisha Fomu: 5 APRIL 2013
Kipindi cha Taarifa:
Kuanzia Mwezi-Mwaka: JAN 2013
Kuishia Mwezi-Mwaka: MARCH 2013

Jina la Kituo: GOV
Idadi ya watu katika kituo: 19428

Appendix 11: Example of a Completed Essential Supplies Stock-out Monitoring Form



TIBU HOMA PROJECT

ESSENTIAL SUPPLIES STOCK OUT FORM

V2: Jan 2014

Date: 01/04/2014 Name of District: KISHAPU

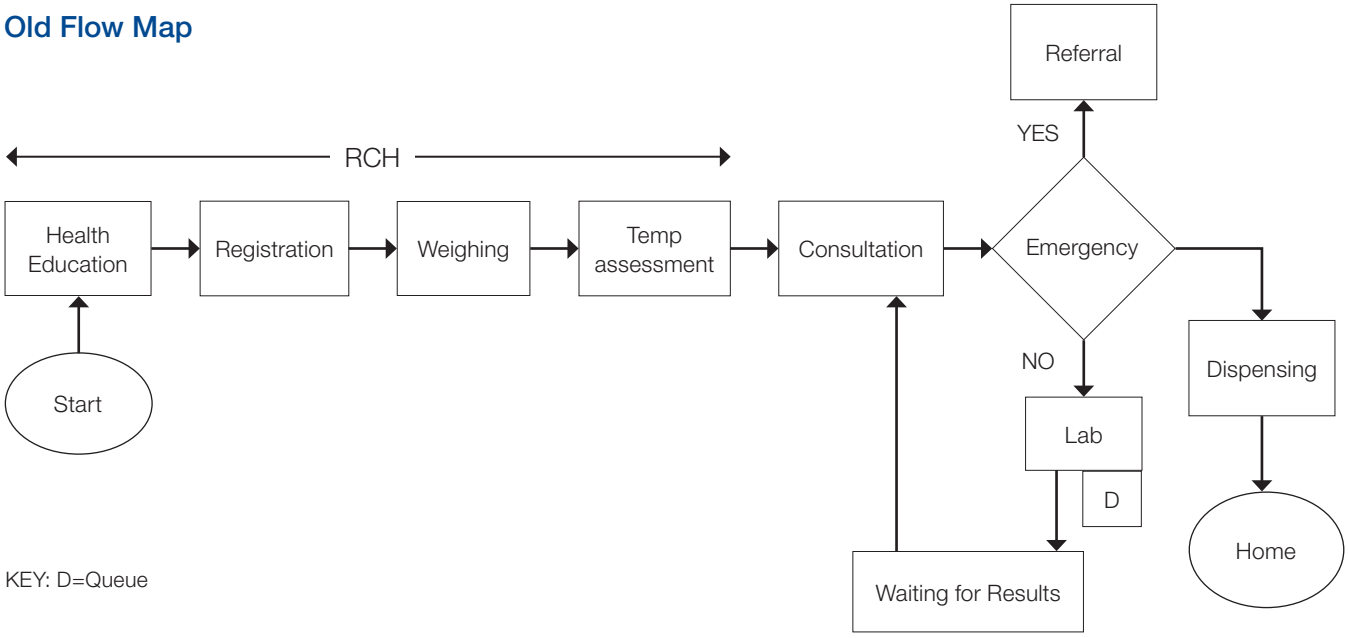
Name of Facility: KISHAPU HC

Angalia kuthibitisha kama kila dawa iliyopo kwenye orodha hii ipo kituoni. Weka alama ya tiki (V) kama dawa husika ipo na alama X kama dawa haipo

Jina la Dawa	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Idadi ya siku ambazo dawa haipo (hesabu alama X)
ACTs 6 tablet	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		0
ACTs12 tablet	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		2
Quinine tabs	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		0
Quinine inj.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		0
Artesunate inj.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		30
Amoxicillin Syrup	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	✓	✓	✓			27
Erythromycin	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		0
Gentamycin inj.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		30
Benzyl penicillin inj.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		0
Chloramphenicol inj.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		0
Mebendazole/Albendazole	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		0
Tetracycline eye oint.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		30

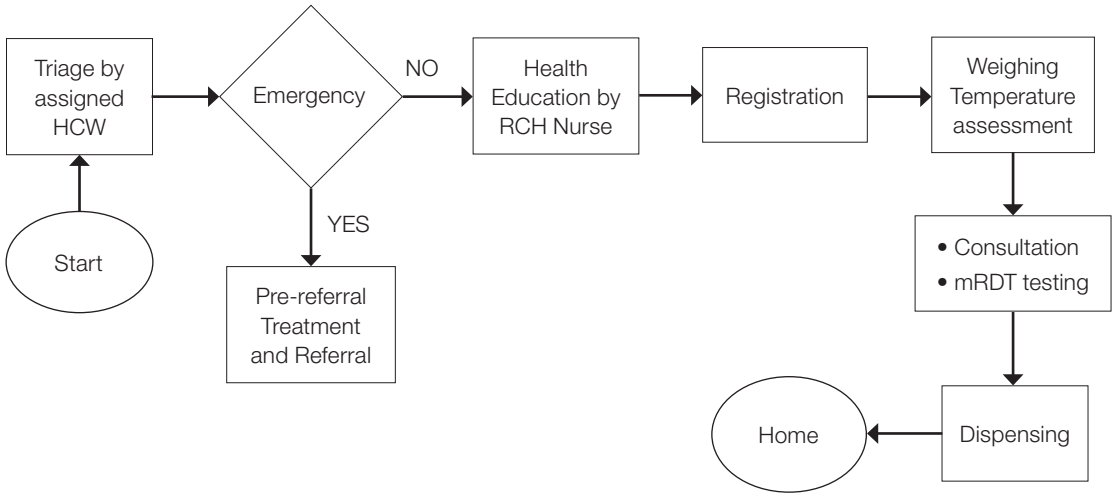
Appendix 12: Old and Improved Patient Flow Map for Children under Five at Nyegezi Dispensary, Mwanza Region

Old Flow Map



KEY: D=Queue

Improved Flow Map



Appendix 13: Examples of Keeping Patient Records

Before Intervention

After Intervention

Appendix 14: How Changes Were Evaluated Across the Improvement Objectives

Improvement Objective 1: Ensure all children under five with fever are correctly assessed and managed according to IMCI algorithm

Rating: 1=very low, 2=low, 3=moderate, 4=high, 5= very high.

Change Idea	Number of sites tested the change	Evidence from run chart on significance of the change	Relative Importance	Simplicity: How easy it was to test	Scale-ability: How easy is it to implement the change on a large scale	Total Rating
Introduction of IMCI guidelines	33	**Rated 3 – Moderate** – Average improvement contribution 28.2% (Between Jan–Aug 2013, IMCI compliance improved in Kakindo Disp 0%–100%, Kashasha Disp 0%–50%, and Ndolage Hospital 0%–40%) – Might be available but not used*	**5 – Very High** Contributes to improve performance of health worker in management of <5s. Also ensure U5s are properly treated	**4 – High** – It is within the capacity of the facility – Needs logistics to prepare the documents	**4 – High** – It is possible for all facilities to implement – Needs budget and other logistics like transport to distribute guidelines	**Very High 16**
On job orientation of staff on IMCI	46	**Rated 3 – Moderate** – Average improvement contribution 27% Needs time for individuals to understand, staff turnover, reluctance of staff to change.	**5 – Very High** Contributes to improve performance of health worker in management of <5s	**4 – High** Within capacity of the facility – Doesn't need traveling – Resources within facility capacity – However there is reluctance of staff to be trained on the job.	**4 – High** Within capacity of the facility – Doesn't need traveling – Resources within facility capacity – However there is reluctance of staff to be trained on the job.	**High 14**
Monthly Internal supervision/ mentorship (including case reviews)	38	**4 – High** – Average improvement contribution 27%	**5 – Very High** Enables the management to monitor performance	**4 – High** Within the capacity of the facility (Doesn't require much resources and time)	**4 – High** Within the capacity of the facility (Doesn't require much resources and time)	**16**
Weekly Internal supervision/ Mentorship on Case Management (including case reviews)	25	**4 – High** – Average improvement contribution 60%	**4 – High** Helps to address case management issues	**4 – High**	**4 – High**	**16**
Daily Internal supervision/ Mentorship on Case Management (including case reviews)	25	**5 – Very High** – Average improvement contribution 70%. Changes are reflected immediately	**5 – Very High** Problems are addressed immediately and results observed immediately	**3** – It requires more staff time to implement	**4** – Needs lots of time, human resources, and funds to implement	**17**

* Some sites tested a combination of changes at the same time thus these results applies to all change ideas targeting improving compliance to IMCI

Change Idea	Number of sites tested the change	Evidence from run chart on significance of the change	Relative Importance	Simplicity: How easy it was to test	Scale-ability: How easy is it to implement the change on a large scale	Total Rating
Introduction of a standardized admission sheets (CCPs)	12	**4 – High** Average improvement contribution 27% Helps to assess CM	**5 – Very High** Correct data is important for decision making – It's an important tool for monitoring patient condition	**5 – Very High** Easy to implement	**4 – High** – It's an important tool for monitoring patient condition, but it needs monitoring on documentation, it may also needs funds for producing the forms	**18**
Introduce and display job aids at OPD and RCH	46	**4 – High** – Average improvement contribution 27%	**5** – It is a basic tool for IMCI management	**5** – It is a basic tool for IMCI management	**4** – It is a basic tool for IMCI management	**18**
Triage of sick under fives	34	**4 – High** – Helps to identify severe cases	**5** – It is a lifesaving step and sorting of <5 febrile cases simplified	**4** – It needs trained staff, Doesn't consume time, can be easily done by any of the staff It is affected by staff shortage	**4** – Easy to implement but depends on the adequacy of staff	**14**
Change flow pattern for sick under fives	37	**3 – Moderate** – Average improvement contribution 27%	**5 – High** – It removes redundant steps thus reducing waiting time. – Services obtained under one roof, – Reducing inconvenience to client (client satisfaction improved)	**3 – Moderate** Needs resources for rearrangements and negotiation of leadership, may need funds	**3 – Moderate** Needs resources for rearrangements and negotiation of leadership, may need funds	**14**
To allocate a person to make a follow up on documentation	16	**3 – Moderate** – Average improvement contribution 27% Only few sites implemented this change	**5** – Improves availability of correct data which is important for decision making	**3** – It needs enough staffing, close follow-up	**3** – It needs enough staffing, close follow-up	**13**
Establishment of PQIT	45	**5 – Very High** – Average improvement contribution 70%	**5** – To identify gaps arising at our work site and testing, monitoring and using results	**5** – Easy to establish	**5** – It is within the capacity of the health facility	**20**
Retention of patient cards for reference	45	**5 – Very High** – helps access information	**5** – Abiding to the national policy, availability of data simplify report writing, privacy	**3** – Needs space	**4** – Needs an identified person to take care of – Time consuming – Needs logistics (may need funds) – storage facility can hinder the process	**17**

Improvement Objective 2: Ensure all children under five with fever are attended by a skilled provider within 24 hours of onset of fever

Rating: 1 = very low, 2 = low, 3 = moderate, 4 = high, 5 = very high.

Change Idea	Number of sites tested the change	Evidence from run chart on significance of the change	Relative Importance	Simplicity: How easy it was to test	Scale-ability: How easy is it to implement the change on a large scale	Total Rating
Community health education at health facility	28	**4 – High** Average improvement contribution 89% Nyegezi dispensary 14% April 2012 to 74% July Kakindo improved from 20% April 2012 to 90% Aug 2013, Bunazi HC 3% March 2012 to 61% Aug 2013, Kashasa Disp 12% June 2012 to 48% Aug 2013*	**4 – High** – It stimulate change in behaviors – Easy to apply and message is instantly delivered	**4 – High** – It is easy to deliver education in community meetings	**4 – High**	**16**
Introduction of column of fever for 24hrs	47	**5 – Very High** – Average improvement contribution 89% Managed to track all U5s with fever who came within 24hrs	**5 – Very High** Help to get data	**5 – Very High** Easy to implement	**5 – Very High** It's very easy doesn't need much resources to implement	**20**
Sensitize VHW on importance of early health seeking behavior	23	**4 – High** – Average improvement contribution 35%	**4 – High** VHWs are trusted by community members and covers large area	**5 – Very High** Easy to reach them, sensitize them, they walk house to house with less cost	**5 – Very High** They don't cost much, they are available in most of communities	**18**
Sensitize WDC & VDC on importance of early health seeking behavior	46	**4 – High** – Average improvement contribution 49%	**5 – Very High** It involves key leaders from the community who can spread the messages easily at villages and hamlets	**4 – High** No cost involved	**3 – Moderate** Sometime meetings are not conducted as planned	**16**
Allocate staff to monitor 24hrs documentation	20	**4 – High** – Average improvement contribution 49%	**4 – High** Helps in getting precise data and identify and correct problems immediately	**4 – High**	**4 – High**	**16**
Display posters showing importance of early health seeking behavior	33	**3 – Moderate** – Average improvement contribution 36%	**4 – High** Convey message for those who know how to read	**4 – High** Very simple and has relatively low cost	**4 – High**	**15**
Health Education at RCH 5 times a week on health seeking services in 24 hrs	45	**4 – High**	**5 – Very High** In depth massage is delivered to target audience frequently	**4 – High**	**4 – High** Routine activity done to most of the facilities	**17**

* Some sites tested a combination of changes at the same time thus these results applies to all change ideas targeting improving health seeking behaviors

Change Idea	Number of sites tested the change	Evidence from run chart on significance of the change	Relative Importance	Simplicity: How easy it was to test	Scale-ability: How easy is it to implement the change on a large scale	Total Rating
Health education during outreach/ mobile clinic	33	**4 – High**	**4 – High** In depth massage is delivered to target audience frequently	**4 – High**	**4 – High**	**16**
Relocate OPD services for U5s at RCH	14	**5 – Very High** – Average improvement contribution 36%	**5 – Very High** Reduced time spent and all services under 1 roof	**2 – Low** Need resources i.e. human, renovation funds	**2 – Low**	**14**
Sensitize communities through local media	1	**2 – Low**	**3 – Moderate**	**1 – Very Low** Its expensive to pay for air time	**1 – Very Low**	**7**
Allocate clinician for U5 at RCH/ Pediatric OPD	26	**5 – Very High** – U5s care are prioritized	**5 – Very High** It improved care for U5, reduce time	**2 – Low** Need human resources, affected by shortage of staff	**2 – Low**	**14**

Improvement Objective 3: Ensure all children under five with fever are tested for malaria with mRDT/microscopy

Rating: 1 = very low, 2 = low, 3 = moderate, 4 = high, 5 = very high.

Change Idea	Number of sites tested the change	Evidence from run chart on significance of the change	Relative Importance	Simplicity: How easy it was to test	Scale-ability: How easy is it to implement the change on a large scale	Total Rating
Orient Staff on the job on MRDT testing	45	**4 – High** Average improvement contribution 30% after orientation Ilemela Disp 50% March 2012 – 100% Aug 2013, Lushamba Disp 27% Feb 2013 – 92% Aug*	**4 – High** – Increase of testing sites – Reduced waiting time for U5s	**5 – Very High** – Training staff and kits available – Within the facility's capacity	**5 – Very High** – Easy to scale where staff available	**18**
Additional column on U5 register for mRDT results	45	**5 – Very High** – Average improvement contribution 90% in documentation	**5 – Very High** Easy to track MRDT testing and results	**5 – Very High**	**4 – High** Need extra registers apart from HIMS registers	**19**
In case of mRDT shortage, Microscopy testing done during the day, mRDT testing at night	4	**4 – High** – Average improvement contribution 10% – Enabled testing more U5 at all times	**3 – Moderate** Help in Management of mRDT stock Not workable in all situations	**3 – Moderate** Not workable in all situations	**3 – Moderate**	**13**
Introduce multiple mRDT testing sites other than Lab	35	**4 – High** – Average improvement contribution 55%	**4 – High** Reduced waiting time and increased testing rate	**4 – High** Reduction of clients waiting time, Reducing work load to Lab staff	**3 – Moderate** Resistance from Health care staff, lack of appropriate infrastructure	**15**

* Some sites tested a combination of changes at the same time thus these results applies to all change ideas targeting improving malaria testing rates for under-fives with fever

Change Idea	Number of sites tested the change	Evidence from run chart on significance of the change	Relative Importance	Simplicity: How easy it was to test	Scale-ability: How easy is it to implement the change on a large scale	Total Rating
Allocate staff to monitor 24hrs documentation	26	**4 – High** – Average improvement contribution 55%	**4 – High** Increase in testing rate	**4 – High**	**4 – High** It is in the facility capacity	**16**
Allocate Lab. staff for testing <5s mRDT/microscopy during week end	2	**4 – High** – Average improvement contribution 66%	**4 – High** Increase in the rate of testing	**4 – High**	**4 – High** It is in the facility's capacity	**16**
Orient staff on documentation of mRDT results	28	**5 – Very High** – Average improvement contribution 90% improvement	**5 – Very High** Tracks mRDT testing and results	**5 – Very High**	**4 – High** Extra registers	**19**
Conduct internal SS&M weekly	37	**4 – High** Average improvement contribution 30%	**4 – High** – Close supervision in gap identification and correction	**5 – Very High** – Within capacity of the facility (internal arrangement)	**3 – Moderate** – Need knowledge-able personnel to carry out Internal SS&M.	**16**
Borrow test kit from nearby Health Facility	16	**4 – High** Average improvement contribution 20% Continuous availability of testing kits	**5 – Very High** – Continuous testing	**3 – Moderate** – Depends on willingness of other facilities to lend	**3 – Moderate** – Need knowledge-able personnel to carry out Internal SS&M.	**15**
Conduct monthly stock tracking of mRDT	35	**4 – High** Average improvement contribution 20% Sustainability of testing	**5 – Very High** – Track stock out	**5 – Very High** – No expertise required	**5 – Very High** – Easy	**19**

Improvement Objective 4: Ensure the facility has adequate stocks of essential medicines and supplies

Rating: 1 = very low, 2 = low, 3 = moderate, 4 = high, 5 = very high.

Change Idea	Number of sites tested the change	Evidence from run chart on significance of the change	Relative Importance	Simplicity: How easy it was to test	Scale-ability: How easy is it to implement the change on a large scale	Total Rating
Display R&R submission calendar at the pharmacy	38	**4 – High** Most facilities had 10+ of tracer items available Nyamijundu Disp 9 – 13 tracer items between Sept 2012- Aug 2013 Nyanguge HC 10 – 15 tracer items between Jan – Aug 2013 Kaloleni Disp 12 – 17 tracer items Jan – July 2013*	**4 – High** – It reminds responsible individuals to adhere in ordering schedule	**5 – Very High** – Timely ordering of medication done and no cost involved	**5 – Very High** Easy to prepare & display the schedule and it is within the facility's capacity	**18 very high**

* Some sites tested a combination of changes at the same time thus these results applies to all change ideas targeting improving stock of medicine and supplies

Change Idea	Number of sites tested the change	Evidence from run chart on significance of the change	Relative Importance	Simplicity: How easy it was to test	Scale-ability: How easy is it to implement the change on a large scale	Total Rating
Conduct internal SS&M weekly	17	**4 – High** – Average improvement contribution 30%	**4 – High** Close supervision in gap identification and correction	**5 – Very High** Within capacity of the facility (internal arrangement)	**3 – Moderate** Need knowledge-able personnel to carry our Internal SS&M.	**16**
Purchasing supplementary drugs using cost sharing funds	13	**4 – High** – Average improvement contribution 30% – Evidence shows increase availability of drugs	**5 – Very High** It complements the Supplies from MSD	**3 – Moderate** – Depends on the availability of funds. – Bureaucracy in the logistics	**4 – High** – Policy allows – Can work well where there is cost sharing system	**16**
Brief report on stock position during clinical meeting	31	**4 – High** – Evidence of 10+ availability of drug items on the tracer list	**5 – Very High** Keep informing the team/HMT about the drug status	**5 – Very High** Easy to implement the change and it is within the capacity of the facility	**5 – Very High** Can easily be applied everywhere	**19**
Revitalization of Hospital therapeutic Committees	5	**4 – High** – Evidence shows an increase availability of drugs at the facilities	**4 – High** – Helping the facility to control rational use of medicines – Transparency in procurement of supplies – Technical team becomes aware of the drug status	**4 – High** It is within the facility capacity as it doesn't need more resources to develop the committees as most of them are part of PQIT	**4 – High** Can easily work at hospital level	**16**
Distribute stock-out forms for tracking essential medicine	20	**5 – Very High** – Evidence shows 10+ items; The form informed the facility about the drug status thus correcting stock-out items	**5 – Very High** The PQIT were informed of the drug status throughout the year	**4 – High** Forms are available and within the facility's capacity	**5 – Very High** Can be scaled-out everywhere as no expertise is needed	**19**
Conduct monthly stock counting	11	**4 – High** – Average improvement contribution 15% – Evidence shows availability of essential medicine resulted from accurate reporting/ information from the monitoring forms	**4 – High** Early identification of stock-out items	**4 – High** Easily implemented, no technical skill needed	**4 – High** Can be scaled out everywhere	**16**

Improvement Objective 5: Ensure that all confirmed outpatient malaria cases receive appropriate anti-malarial treatment according to national guidelines

Rating: 1 = very low, 2 = low, 3 = moderate, 4 = high, 5 = very high.

Change Idea	Number of sites tested the change	Evidence from run chart on significance of the change	Relative Importance	Simplicity: How easy it was to test	Scale-ability: How easy is it to implement the change on a large scale	Total Rating
Allocate 2 CO (Skilled provider) to provide evening treatment for <5	7	**3 – Moderate** Average improvement contribution 90% Igoma HC maintained 100% Jan – Aug 2013, AICT Makongoro 31% – 75% March – Aug 2013*	**3 – Moderate**	**2 – Low** Shortage of staff	**3 – Moderate**	**11**
Weekly CME to other staff on use of IMCI guideline	14	**4 – High** – Average improvement contribution 90%	**5 – Very High** It reminds people on IMCI, clarifies queries	**3 – Moderate** Difficult to find all staff available,	**4 – High** It needs time and availability of staff	**16**
Distribute IMCI guideline, job aid and treatment chart of Malaria management	25	**5 – Very High** – Average improvement contribution 30% – Evidence shows increase availability of drugs	**5 – Very High** Provide reference points	**4 – High** Needs funds for photocopying, lamination etc.	**3 – Moderate** It needs some funds	**17**
Staff orientation on treatment per policy	11	**3 – Moderate** – Average improvement contribution 90%	**5 – Very High** Very important	**4 – High** No resources needed	**4 – High** Not much resources needed	**16**
Internal mentorship on Malaria case management	45	**4 – High** – Average improvement contribution 40%	**5 – Very High** Help to identify problems and address them	**4 – High** Doesn't need much resources but needs time and commitment	**4 – High** Doesn't need much resources but needs time and commitment	**17**
Allocate QI member at dispensing room	9	**5 – Very High** – All facilities scored Average improvement contribution 100%	**5 – Very High** Helped <5 treated according to national policy	**5 – Very High** Very simple to accomplish	**5 – Very High** Dispensing is indispensable	**20**
Weekly case note review	18	**3 – Moderate**	**5 – Very High** Problems are identified early and keeps treatment trend on track	**4 – High**	**4 – High** Depends on staff commitment;	**16**

* Some sites tested a combination of changes at the same time thus these results applies to all change ideas targeting improving treatment of uncomplicated malaria

Appendix 15: How-To Guide for Priority Change Ideas, by Improvement Objective

Improvement Objective 1: Ensure all children under five with fever are correctly assessed and managed according to IMCI algorithm

HOW-TO GUIDE			Notes on level of evidence from the rating	Priority
Change idea 1	Introduction of IMCI guidelines	**Steps** – To obtain IMCI guideline from DMO office – To photocopy IMCI guideline if not enough – Distribute guideline to all department caring for <5 – Training /Orientation – Monitoring use of guidelines **Resources** – IMCI guideline – Funds for photocopy **Actors** – DMO – DIMFP – In-charge of facility	**16 – High** It is a basic tool for IMCI management. For users it is very important to ensure U5s are properly treated	4
Change idea 2	Ongoing orientation of staff on IMCI	**Steps** – Identify staff to be oriented – Preparing the materials – Make training schedule – Orient **Resources** – IMCI guideline – Funds for Stationery – Health care workers **Actors** – In-charge of the facility, PQIT – Trained H/W(QI team)	**14 – High** – Within capacity of the facility – Doesn't need traveling – Resources within facility capacity – Need time for individuals to understand – Staff turnover	7
Change idea 3	Monthly Internal supervision/ mentorship	**Steps** – Identify the mentors and supervisors – Producing roaster and display – Prepare guide (checklist) for supervision/mentorship – To produce supervision/mentorship report – Give feedback to the team end of the month **Resources** – Funds, guidelines and time **Actors** – In-charge of the facility, QI facilitator and trainee	**16 – High** Within the capacity of the facility (does not need money)	6

continued

	HOW-TO GUIDE		Notes on level of evidence from the rating	Priority
Change idea 4	Weekly Internal supervision/ Mentorship on Case Management	**Steps** – Identify mentors and supervisors, – Train on how to conduct internal supervision and mentorship in case management, – Guidelines on supportive supervision and mentorship **Resources** – Funds, guidelines and time **Actors** – QI facilitators and trainee	**16 – High**	5
Change idea 5	Daily Internal supervision/ Mentorship on Case Management	**Steps** – Identify the mentors and supervisors – Train on how to conduct internal supervision and mentorship in case management – Guidelines on supportive supervision and mentorship **Resources** – Funds, guidelines and time **Actors** – QI facilitators and trainee	**17 – Very High** Rated very high because problems are addressed immediately and results observed immediately	3
Change idea 6	Introduction of a standardized admission form and observation chart	**Steps** – Obtain sample of the admission form – Produce more copies – Include the forms in the patient files – Orient the H/W on the forms – Monitoring and evaluation of the usage of the form **Resources** – Standardized Admission Forms – Funds for producing the forms **Actors** – In-charge of the facility, – QI team	**18 – Very High** – It is an important tool for monitoring patient condition, – It is easy to use	1
Change idea 7	Introduce and display job aids at OPD and RCH	**Steps** – Obtain the job aids from THP – Reproduce and display them – Orient h/w on job aids – Mentor and monitor its use – Monitoring and evaluate the use of the job aids **Resources** – Job aids – Funds for producing the job aids **Actors** – In-charge of the facility, QI team, HCWs	**18 – Very High** – It is a basic tool for IMCI management	2

HOW-TO GUIDE			Notes on level of evidence from the rating	Priority
Change idea 8	Triage of sick under five	**Steps** – To obtain training guide – Orient/train h/w – Allocation of staff for triaging and assigning them to the duty roaster – Identify space of triage and emergency treatment – Add column of triage to <5 register – Document triaged patients – Monitoring and mentoring of the performance. **Resources** – Training guide – U5 Register **Actors** – In-charge of the facility, QI team, Triage nurse	**14 – High** – It is a lifesaving step	8
Change idea 9	Change pattern flow for sick under five	**Steps** – QI review the current flow chart – Identify gaps – Look for solutions for the gap – Use solution to make modification in the flow pattern – Inform the management – Implement the new flow – Monitor and evaluate the performance of the new flow **Resources** – H/W **Actors** – In-charge of the facility, QI team	**14 – High** – It removes redundant step thus Reducing waiting time. – Service obtained under one roof, – Reducing inconvenience (client satisfaction improves)	10
Change idea 10	To allocate a person to make a follow-up on documentation	**Steps** – Identify the person to make follow-up – To orient the person – To prepare monitoring checklist – To make the schedule for the activity – To monitoring and evaluate of the performance – To provide the report and feedback **Resources** – HCW – Tools(check list) **Actors** – In-charge of the facility, QI team, HCW	**13 – High** – It removes redundant step thus Reducing waiting time. – Service obtained under one roof, – Reducing inconvenience (client satisfaction improves)	11

continued

HOW-TO GUIDE			Notes on level of evidence from the rating	Priority
Change idea 11	Establishment of PQIT	**Steps** – CHMT meet with facility in charge to establish PQIT – Select committed/willing staff to become members of PQIT – Define roles of each member of the PQIT – Facility management to incorporate QI roles in scope of work of members of PQIT – Facility management meets PQIT to inform them of their QI roles and PQIT roles – PQIT meet and agree on the meeting schedule **Resources** – Stationeries **Actors** – Facility in-charge, PQIT members, CHMT members	**20 – Very High** – Within capacity of health facility	1
Change idea 12	Retention of patient cards for reference	**Steps** – Introduce the idea with HF in-charge – Identify location of patient cards – Agree on coding system – Inform patient care providers on new changes **Resources** – HCWs, file cabinet **Actors** – HCWs, HF in-charges, patient caregivers	**14 – High** – It provides availability of patient records necessary for monitoring improvement	9

Improvement Objective 2: Ensure all children U5 with fever are attended by a skilled provider within 24 hours of onset of fever

HOW-TO GUIDE			Notes on level of evidence from the rating	Priority
Change idea 1	Community health education	**Steps** – Prepare subject, prepare schedule, Prepare PQIT for implementation, communicate with target community leaders, participate and deliver the messages **Resources** – IEC/BCC materials, Flip chart, maker pen, transport **Actors** – MO i/c, HCW, Village Health Worker (VHW)	**16 – High** Rated high because it is easy to be implemented, massage is conveyed immediately and captures a large scale and it has shown evidence in stimulating change in behavior with regards to bringing U5s within 24hrs of onset of fever	7
Change idea 2	Introduction of column of fever for 24hrs (see table 9a and 9b)	**Steps** – Orient staff, Draw column in u5 register, monitor documentation **Resources** – Stationery **Actors** – Clinician, Nurse i/c, MO i/c	**20 – Very High** It is very easy and use minimum resources	1
Change idea 3	Sensitize VHW on importance of early health seeking behavior	**Steps** – Identify the mentors and supervisors – Producing roaster and display – Prepare guide (checklist) for supervision/mentorship – To produce supervision/mentorship report – Give feedback to the team end of the month **Resources** – Funds, guidelines and time **Actors** – In-charge of the facility, QI facilitator and trainee	**18 – Very High** Doesn't need much cost, VHW are available in most communities, and walk house to house, it is easy to organize and conduct	2
Change idea 4	Sensitize Ward Development Committee (WDC) & Village Development Committee (VDC) on importance of early health seeking behavior	**Steps** – Prepare subject, prepare schedule, communicate with target community leaders, participate and deliver the messages **Resources** – Flip chart, maker pen, transport, teaching aids **Actors** – MO i/c, HCW, VDC, WDC	**16 – High** It involves key leaders, no much cost related. But sometimes these meetings are not conducted	4
Change idea 5	Allocate staff to monitor 24hrs documentation	**Steps** – PQIT meet with MO i/c, identify and allocate responsible person, provide responsibilities to identified person, follow-up **Resources** – No resources needed **Actors** – MO i/c, PQIT, allocated staff	**16 – High** It helps to improve documentation and it is effective in getting quality data	6

continued

	HOW-TO GUIDE		Notes on level of evidence from the rating	Priority
Change idea 6	Provide posters showing importance of early health seeking behavior	**Steps** – Prepare materials, create a massage, draw poster, identify area to display, display the poster **Resources** – Flip chart, maker pen, masking tape or glue **Actors** – PQIT, Health Facility Management Team	**15 – High** – Very simple and has relative low cost, and convey messages to all visitors in the facilities	8
Change idea 7	Health Education at RCH 5 times a week on health seeking services in 24 hrs	**Steps** – Prepare subject, prepare schedule, identify area for delivering messages, deliver the messages **Resources** – Flip chart, maker pen **Actors** – MO i/c, HCW, Clients	**17 – Very High** – Done to target audience frequently, doesn't need much resources to implement	3
Change idea 8	Health education during outreach/ mobile clinic	**Steps** – Prepare subject, prepare schedule, identify area for delivering outreach services, deliver the messages **Resources** – Flip chart, teaching aid, maker pen, transport, lunch allowance **Actors** – MO i/c, HCW, Clients	**16 – High** – Done to target audience frequently, doesn't need much resources to implement	5
Change idea 9	Relocate OPD services for U5s at RCH	**Steps** – PQIT meet with MO i/c, identify resources needed, relocate staff and room, test if it is working, make decision **Resources** – Consultation room, min lab, funds for renovation, stationary i.e. registers for U5s **Actors** – MO i/c, PQIT, clinician, lab personnel	**14 – High** – It reduces time spent for care and treatment for U5s, all services brought under one roof. But it might require much resources such as renovation funds, Clinicians and lab person	10
Change idea 10	Sensitize communities through local media	**Steps** – Prepare subject, prepare schedule, invite representative of the media, deliver the messages **Resources** – HCW – Tools(check list) **Actors** – In-charge of the facility, QI team, HCW	**7 – Low** – It is expensive to pay for air time	11
Change idea 11	Allocate clinician for U5 at RCH/ Pediatric OPD	**Steps** – PQIT meet with MO i/c, identify clinician to be relocated, relocate staff **Resources** – Consultation room, funds for renovation, stationary i.e., registers for U5s **Actors** – MO i/c, PQIT, clinician	**14 – High** – It improve care for U5s, reduce time, improve documentation. However, shortage of staff might hinder implementation of this activity	9

Improvement Objective 3: To ensure all children U5 are tested for Malaria with mRDT/Microscopy

HOW-TO GUIDE			Notes on level of evidence from the rating	Priority
Change idea 1	In case of mRDT shortage, microscopy done during the day and use of mRDT at night	**Steps** – Introducing the idea to all staff on the use of mRDT when microscope services not available – To identify HCWs for testing – Duty roster – To identify the person for making follow up **Resources** – mRDT test kits – Gloves – HCWs for testing **Actors** – HCWs	**14 – High** It is within facility capacity	4
Change idea 2	Introduce multiple mRDT testing sites by creating a space for mRDT testing at pediatric OPD	**Steps** – Identify space for mRDT testing at RCH/ OPD – Identify HCWs to perform mRDT tests – Orient HCP identified on mRDT testing at OPD – Allocated person to Monitor progress **Resources** – Room – mRDT kits and Reagents – Gloves – Guideline/procedure manual, – Register books, – Safety box **Actors** – Facility In-charge – PQIT members	**13 – High** It is within their ability particularly in hospitals and health centres	5
Change idea 3	Introduce roster of lab staff at weekends and public holidays	**Steps** – Introduce facility internal circular – Prepare Duty roster – Display duty roaster **Resources** – Ball Pen – Paper **Actors** – Lab HCWs	**19 – Very High** It is within their capacity	2
Change idea 5	Introduced register/ column for U5 with fever tested for mRDT/Microscope at OPD register book	**Steps** – To assign the person to draw column – To introduce and orient HCWs identified on the use of added columns to capture U5 with fever tested. – Assign a person to Monitor Progress **Resources** – Register book **Actors** – HCWs, PQITs	**20 – Very High** It is within their ability	1

continued

HOW-TO GUIDE			Notes on level of evidence from the rating	Priority
Change idea 6	Order for supplementary mRDT from DMO	**Steps** – Daily stock tracking sheet – Reporting to responsible authority where applicable. – Submission of request to DMO – Follow-up **Resources** – Daily tracking sheets, Fare **Actors** – HCWs responsible for pressing order	**16 – Very High** It ensures children are tested before treatment	3
Change idea 7	Orient staff on Job on MRDT testing	**Steps** – Allocate facilitators – Identify staff to be oriented – Collect training materials – Give training schedule – Begin training – Allocate trained staff in working schedule – Monitor and supervise **Resources** – Trainers and Trainees – mRDT training test kits and Training manuals – Gloves – Testing blood samples **Actors** – Trained Lab. Technicians – Trainees (Clinicians and Nurses)	**17 – Very High** – Increase of testing sites – It is within facility's capacity – Low cost	3
Change idea 8	Assign the person for monitoring mRDT stock	**Steps** – To identify and allocation of the person for monitoring mRDT stock **Resources** – Ledger Book – Essential supplies stock out form – Pen **Actors** – Appointed person – PQIT members	**19 – Very High** It ensures availability of mRDT in the Health facility by 60%	2
Change idea 9	Assign the person to check documentation status of mRDT/ Microscope	**Steps** – To identify the person – Orient on proper filling of register books **Resources** – Data verification tool **Actors** – PQIT members – Health facility management team	**20 – Very High** It ensures complete and quality of data	1
Change idea 10	Internal supervision	**Steps** – To identify HCW for supervision – To prepare tool/check list **Resources** – Check list, Pen **Actors** – Supervisor identified, PQIT members	**19 – Very High** It ensures guideline adherence and quality of data.	2

Improvement Objective 4: To ensure the health facility have adequate stocks of essential medicines and supplies

	HOW-TO GUIDE		Notes on level of evidence from the rating	Priority
Change idea 1	Display R&R submission schedule at the Pharmacy	**Steps** – Request R&R calendar from district pharmacist – Produce more copies – Display calendar copies at facility's working units – Adherence to the calendar **Resources** – Papers – Funds for photocopying **Actors** – District Pharmacist, Facility i/c, HCW responsible for pharmacy	**18 – Very High** Ranks very high because it promote adherence to ordering schedule and has low implementing cost	2
Change idea 2	Conduct internal SS&M weekly	**Steps** – Develop schedule – Communicate to supervisors and mentors and HCW – Conduct supervision – Give feed back **Resources** – Check list **Actors** – PQIT – Unit Supervisors	**16 – Very High** Ranks high as it builds capacity of HCW at facility level to improve performance and it is within their capacity	5
Change idea 3	Purchasing Supplementary Medicine and supplies using cost sharing	**Steps** – Identify out of stock essential medicines and Supplies – Costing by using price list – Obtain Price quotations from 3 suppliers – Present to the Health facility committee to get approval – Approval sent to DMO for budget approval – Financial process – Purchase **Resources** – Cost sharing funds **Actors** – HCW – Health facility committee – DMO	**16 – Very High** – Complementing on the Supplies from MSD – Supported by health policy	4
Change idea 4	Brief report on Provide information on stock levels in the morning clinical meetings	**Steps** – Set facility policy insisting the pharmacist/facility In-charge to keep on informing on the drug stock level in the clinical meetings – Allocating staff to inform staff about the stock-out level-daily – Adherence to the policy **Resources** – Human Resource **Actors** – Health care workers/Facility pharmacist	**18 – Very High** Ranked 18 this is very high. Reason; Daily report on stock-out level prompted Facility management teams to maintain stock levels	3

continued

	HOW-TO GUIDE		Notes on level of evidence from the rating	Priority
Change idea 5	Revitalization of Hospital therapeutic Committees	**Steps** – Obtain the MOHSW guidelines – Identify committee members according to guidelines – Orient committee members about the matter – Develop fail for keeping documents – Take off implementing the plans **Resources** – Human Resource – Material resources-/stationeries – Meeting schedule **Actors** – Health care workers	**16 – Very High** Reasons; 10+ tracer items of essential medicine.	1
Change idea 6	Distribute Stock out forms for tracking essential medicines and supplies	**Steps** – Collect stock-out form from the source/DMO – Reproduce own copies of stock-out forms – Allocate staff to distribute the forms – Filling of the forms **Resources** – Human Resource – Material resources/stationeries **Actors** – Health care workers/Facility pharmacist	**19 – Very High** Reasons; Providing facility's stock level information	1
Change idea 7	Conduct monthly stock counting	**Steps** – Obtain ledgers and bin cards – Record received and issued kits – Physical counts **Resources** – Ledgers and bin cards **Actors** – HCW responsible for lab unit	**16 – Very High** Because it quantifies the required items according to need	1

Improvement Objective 5: Ensure that all confirmed outpatient malaria cases receive appropriate anti-malarial treatment according to National Policy

HOW-TO GUIDE			Notes on level of evidence from the rating	Priority
Change idea 1	Allocate 2 CO (Skilled provider) to provide evening treatment for <5	**Steps** – PQIT meet with MO i/c, prepare and display duty roaster, make follow-up **Resources** – No resources **Actors** – MO i/c, PQIT, skilled providers	**11 – Moderate** Shortage of human resources might hinder successful implementation	6
Change idea 2	Weekly CME to other staff on use of IMCI guideline	**Steps** – Brief MO i/c, prepare topic, prepare schedule including individual to present, deliver IMCI sessions **Resources** – Stationeries **Actors** – PQIT members, Chief clinician, HCWs	**16 – High** Helps to remind HCWs on IMCI, clarifies queries. However, it is difficult to implement every week and find all staff available	5
Change idea 3	Distribute IMCI guideline, job aid and treatment chart of malaria management	**Steps** – Request the guidelines from sources, Plan and budget for photocopying and lamination, photocopying, binding and lamination of guideline, distribution to identified areas **Resources** – Funds, IMCI guidelines, Job aids **Actors** – PQII members, MO i/c	**17 – High** It simplifies HCWs work but needs funds for photocopying and lamination	3
Change idea 4	Staff orientation on treatment according to policy (standard)	**Steps** – Brief Health Facility i/c, prepare topics and schedule for orientation, deliver Treatment CM policy. **Resources** – National policy guideline and stationary **Actors** – PQITs, health facility i/c	**17 – High** It is important in improving management of U5 and no much resources needed	2
Change idea 5	Internal mentorship on malaria case management	**Steps** – Brief the Health Facility i/c, acquire tools for SS&M, prepare schedule and allocate staffs, Conduct SS&M **Resources** – National policy guidelines **Actors** – PQIT and MO i/c	**17 – High** Help to identify problems and address them and no much resources needed	4
Change idea 6	Allocate QIT member to assess treatment provided	**Steps** – Identify QI member – Assign duties **Resources** – Human – U5s registers **Actors** – Health Facility In-charge – PQIT members	**17 – High** Help to identify under-fives who are incorrectly treated and improve care for under-fives	5

continued

	HOW-TO GUIDE		Notes on level of evidence from the rating	Priority
Change idea 7	Allocate QI member at dispensing room	**Steps** – Identify QI member – Assign duties **Resources** – Dispensing register & tools – Human **Actors** – PQIT & HCW	**20 – Very High** – Ranked very high because dispensing is indispensable activity in health facility	1

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